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THE Art of Painting IN OIL.

Wherein is included each particular Circumſtance relating to that Art and Myſtery: Containing the beſt and moſt approved Rules for Preparing, Mixing, and Working of Oil-Colours.

The Whole Treatiſe being ſo full, compleat, and ſo exactly fitted to the meaneſt Capacity, that all Perſons whatſoever, may be able, by theſe Directions, to paint in Oil-Colours, all Manner of Timber-Work; ſuch as Poſts, Pales, Paliſadoes, Gates, Doors, or any Thing elſe that requires either Uſe, Beauty, or Preſervation from the Violence or Injury of the Weather.

In which are alſo particularly laid down, all the ſeveral Circumſtances required in Painting of Sun-Dials, Printed-Pictures, Shaſh-Windows, *&c.* in Oily-Colours.

The Fifth Impreſſion, with ſome Alterations, and many Matters added, which are not to be found in the former Editions.

To which is added, The whole Art and Myſtery of Colouring Maps, and other Prints, with Water-Colours.

By *JOHN SMITH*, C. M.

LONDON:

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To the READER.

READER,

THE ſeveral Impreſſions of this Work having given very good Satisfaction to many ingenious Perſons, that were deſirous of ſome Inſtructions in this Matter, and the Books being all ſold off, and a new Impreſſion intended, I was deſired to take ſome Pains to view and correct the Work, and to add ſuch Things as were found wanting, to make it compleat; which, I hope I have done, to the Satisfaction of all that ſhall peruſe this laſt Edition, there being not wanting in it, any one particular Circumſtance, that is requiſite to a Work of this Nature.

I ſuppoſe no Man will judge, that this Book, is deſigned any Ways to inſtruct thoſe that are profeſſed Painters, whoſe Knowledge in theſe Affairs muſt be ſuppoſed to out-ſtrip theſe firſt Rudiments of their own Profeſſion; no, the chief Deſign of this Work is, only in order to inſtruct

ſuch ingenious Perſons as are deſirous of ſome Inſight into the Nature of Working in Oil-Colours.

Beſides this, the Gentry themſelves, that live far remote from great Cities, where Painters uſually reſide, may ſometimes have Occaſion to play the good Huſband, in preſerving ſuch Ornaments of their Habitations, as are moſt expoſed to the Violence of Rain and Wet; there being leſs Trouble in preſerving that already made, than in making new. When a Gentleman therefore has been at the Charge in Fitting his Habitation with good Doors and Gates, has fenced it about with Pales, and adorned his Gardens with Borders and Paliſadoes, Seats and Arbours to reſt in, and ſuch like; it is eaſy for any of his Servants, by the Directions here given, to be able to colour over and paint, any of theſe, or any other Kinds of Timber-Work in Oil-Colours.

In Painting of Sun-Dials, I have been very particular, for this Reaſon, that there being many Books extant, that teach the Way of drawing Dials, and many Gentlemen are very expert in them, but yet few or none are able to paint their Dial

on the Plain, when they have drawn the Draught; therefore, I thought it not Time ill-ſpent, to ſet down the ſeveral material Particulars relating to that Work; not doubting but all Perſons, that are Lovers of Art, will add this Piece to that Part of their Library that relates to Dialling.

In the whole Work, I have been careful to relate only Matter of Fact, and ſet down only ſuch Rules and Obſervations, as by infallible Experiments myſelf have found true, avoiding, altogether, Things ſpeculative, or what is only known by Hear-ſay; and, therefore, as to all the Particulars of it, the Reader may rely upon them as true and certain. The Stile, I confeſs, is mechanick and plain, but I conſider, that Diſcourſes of this Nature require not Eloquence to perſuade, or entice the Reader; Knowledge being beſt communicated by clear and ſignificant Expreſſions; and in this, I have done my Endeavour; and for the reſt, if any ſhall take Exception, I have this only to ſay, that my Aim in it has been more for the Profit and Pleaſure of others, than my own Advantage.

To the READER.

To conclude therefore; Good Reader, if it ſhall be found, that this Piece is entertained in the World with any kind Acceptation, I do promiſe my Endeavour farther to communicate to the ſame, ſome Hundreds of particular Experiments, of great Uſe and Advantage to moſt Sorts of People, and ſuch as relate to almoſt every particular Circumſtance of human Life; all of them related with the greateſt Faithfulneſs, Care, and Plainneſs, that each Particular is capable of. In the mean Time, let us all be ſo far careful in our own Affairs, that while we ſtrive to excel others in Knowledge, we fall not ſhort of them in Virtue and a good Life: The End of all Science tends chiefly to a temporal Satisfaction; but he that adds Virtue to his Knowledge, adds to the Felicities of this World, the Glories of the next.

Farewel.

J. S. C. M.

THE

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THE

THE ART OF PAINTING.

CHAP. I.

An Account of the ſeveral Tools, or manual Utenſils, that are uſed in the Art of Vulgar Painting.

THE firſt is the Grind-Stone and Muller for Grinding of Colours. The Stone muſt be a hard, ſpotted or rance Marble, of a cloſe Grain, not ſpongy or full of ſmall Pores; for if the Grain of the Stone be not cloſe,

but hollow and ſpungy, the Colours that are firſt ground on it, cannot ſo well be cleanſed off, but that ſome Part will ſtill remain in theſe hollow Pores of the Stone, which will much ſpoil the Beauty and Luſtre of thoſe other Colours that are ground after it. This Stone for Grinding, ought to be about a Foot and a half ſquare, and ſo thick, that its Weight may be ſufficient to keep it faſt and ſteady, and not apt to be moved when Colours are grinding on it

2. The Muller is a Pebble-Stone, of the Form of an Egg, the bigger End of which is to be broken off, and with ſharp Sand or Emery, it muſt be ground ſmooth and flat, on ſome other hard flat Stone; and the Edges of it muſt be well rounded off, that the Colours may the better ſlide under it when it is moved round. This Stone ought to be about two Inches Diameter, or three at moſt, on the flat End, and about five Inches high, that ſo you may command it the more eaſily in the Time of Grinding.

For want of a ſpotted Marble (which is a Stone of a haſle Colour, compact of a Number of Kernels, as it were, in the

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the Greet of it) you may make uſe of any Kind of hard Marble, either White or Black; ſome I have known to uſe a Slate, ſuch as, in *Suſſex*, they cover their Houſes with, being in large Pieces; ſome of which I have ſeen above two Foot ſquare, and an Inch and a half thick; which Kind of Slates for Vulgar Paintings may ſerve very well.

When a good-ſhap'd Stone for a Muller is wanting, a Fragment of any ſmooth-ſided Stone, cemented (with Roſin and Brick-Duſt mixt together) into a Piece of Wood of a fit Shape to hold it by, has performed the Work as well as the beſt Muller in the Shops.

3. To theſe belong a Voider, being no other than a Lanthorn-Horn, about three Inches one Way, and four the other; this Voider is to clear off the Colours from the Stone when ground, and alſo to keep them together in the Time of Grinding, when it ſpreads too much.

For want of this, a ſmooth Piece of Wood of the ſame Size, cut thin and made very ſharp and even on the Edge, may ſerve as well.

4. Pots

4. Pots and Pans muſt alſo be provided, either of Earth or Tin, of ſeveral Sizes, according to the Quantity of Colours to be ground, into which they are ſtill to be put as you grind, till you have ground Colour enough of each Sort, as may be neceſſary about the Work you deſign them for.

But, in caſe you deſign to grind at one Time, ſo much of each Colour as may be ſufficient to ſerve your Occaſions a long Time together, as ſome do; then, when you have ground all thoſe Quantities of each, as you think fit, let them be put up and tied cloſe in Ox-Bladders, or in the Bladders of Hogs or Sheep, according as your Quantities are; this will preſerve them from drying or ſpoiling, a long Time together.

I remember, I had a Parcel of Colours given me in the Year 1661, by a Neighbouring Yeoman, that were, as he ſaid, left at his Houſe by a Trooper, that quartered there in the Time of the Wars, about the Year 1644. This Man was by Profeſſion a Picture-Drawer, and his Colours were all tied up in Bladders, according to the Method before preſcribed;

and

and when I had opened them, I found them in a very good Condition, and, to my Thinking, as fit for Uſe, when mixt with a little freſh Oil, as if they had been but very lately ground, though they had remained in this Condition about ſeventeen Years.

5. You muſt be alſo provided of Bruſhes and Pencils of all Sorts and Sizes. Bruſhes are always made of Hogs Briſtles; they are of ſeveral Sizes and Shapes, ſome round, and others flat; the round ones are of all Sizes, from two Inches Diameter to a Quarter of an Inch; thoſe of the largeſt Size are for Priming the Work, and for laying ſuch Colours as are uſed in great Quantities, and in Colouring over the Superficies of all large Work; ſuch as Poſts, Pales, Wainſcot, or ſuch like: The ſmaller Sort of Bruſhes are to uſe in ſuch Parts and Places of any Work, as larger ones cannot well come to work in.

Flat Bruſhes are chiefly in Uſe for Drawing of Lines, and in the Imitation of Olive and Walnut-Work.

6. As for Pencils, they are compounded of a finer and ſmaller Hair: Theſe alſo

alſo are of ſeveral Sizes, but all generally round, being for the moſt Part fitted into Swans, Geeſe, or Ducks-Quills, and from thence are termed Swans-Quill, fitcht or pointed, Gooſe-Quills, fitcht and pointed, Ducks-Quills, fitcht and pointed. Beſides theſe, there are a larger Sort of Pencils in Tin Caſes, and ſome in Stocks, like Bruſhes, all made of the fine Hair.

In the Choice of Bruſhes and Pencils, obſerve theſe Rules: For Bruſhes, obſerve whether the Briſtles are faſt bound in the Stocks, and the Hair ſtrong and lie cloſe together; for if they don't lie cloſe but ſprawl abroad, ſuch will never work well; if they are not faſt bound in the Stock, the Briſtles will come out when you are uſing them, and ſpoil your Work; for ſuch I have ſeen, where the looſe Hairs, from the Bruſh, have lain buried up and down in the Colours laid on, to the great Diſparagement of the Work: To prevent this, if they are not faſt bound, drive in ſome thin Wooden Wedges between the Thread, with which they are bound round; and by thus doing, the Briſtles will be made tight and ſecure.

In

In Chuſing of Pencils, eſpecially the pointed ones, do thus; put them into your Mouth, and moiſten them a little, then draw them forth between the Tongue and the Lip, and if they come out with an intire ſharp Point, without Cleaving in twain, they are good; provided, alſo, they be thick and full ſet next the Quill, and alſo faſt bound; if they be thin and lean next the Quill, they never ſtand well to the Work, nor draw ſharp and clever.

To every one of theſe Caſe, or Quill-Pencils, let a neat Stock be fitted, about nine Inches in Length at the leaſt; for, unleſs the Pencil be held a good Diſtance from the Hand, you ſhall never be able to command it well, nor work ſo neat, as when you have the true Command of a Pencil, held thus at a large Diſtance, your Hand being ſupported, as is uſual, by a Ruler, or ſmall Walking-Stick; one End of which you muſt hold in your left Hand, and the other muſt reſt on the Work, but yet ſo as not to do it any Injury.

7. If you have, at any Time, Occaſion to gild with Leaf-Gold, on an Oily-Size,

according to the uſual Practice of Painters, there do then belong to this Work ſeveral diſtinct manual Tools: As firſt, a Cuſhion, upon which the Leaves of Gold muſt be laid, when they are to be cut into ſuch Forms as fit the Work you are to gild. This Gilding-Cuſhion is generally made of a ſmooth-grained Bazil-Skin, the Fleſh-Side outward; this is to be nailed to the Edges of a ſquare wooden Bottom, about ſix Inches ſquare, and then well ſtuft out with Cotton or Wool, very hard, plain, and flattiſh. Upon this Gilding-Cuſhion the Gold Leaves are to be laid, when you would cut them into ſuch Scantlings as will beſt fit the Work you deſign to gild.

8. The Inſtrument you make uſe of to cut the Leaves, muſt be either a ſharp ſmooth-edg'd Caſe-Knife, or elſe a Slip of the hollow Spaniſh-Cane, cut up to a ſmooth and ſharp Edge with a good Pen-Knife; this Cane-Knife is counted the beſt, becauſe, if well made, it will not only be very ſharp, but alſo cut the Gold Leaf more naturally than any other; for a Steel-Knife, though it cut very well, yet the Gold will ſtick to't, and

ſo

ſo give you much Trouble to part the Leaf from it, except you are careful to keep the Edge very dry, by continually wiping of it with a clean and dry Cloth; whereas a Cane-Knife will put you to no ſuch Trouble in the Uſe of it, its Subſtance being of ſuch a Nature, as not to retain any viſcous or clammy Matter, capable of making the Gold ſtick to it.

9. When by the Uſe of theſe you have cut out the Leaves of Gold into proper Scantlings, it muſt then be taken from off the Cuſhion, and laid down upon the Work you are to gild; to perform which, if the Work be flat and plain, you muſt uſe the Gilding-Pallet; 'tis only a flat Piece of Wood about three Inches long, and an Inch broad, upon which is to be glued a Piece of fine Woollen-Cloth of the ſame Length and Breadth: Upon this Pallet do but breathe with your Breath, that the Cloth may be made a little moiſt by it; then if you clap it down gently on the Gold that is cut out, it will ſtick to the Pallet, and may from thence be readily conveyed to the Work you are to gild, and laid down on it; but this Kind of Tool is only

only for flat and plain Work, in which Caſe, if you are to cover any large Quantity of Work, your Pallet may be as large as the whole Leaf of Gold, and ſo you may transfer them from the Book to the Work, without farther Trouble of cutting into ſmaller Parts.

10. But, if it be any hollow or carved Work that is to be gilt, then Painters do uſually take up their Gold, either from the Book or Cuſhion, with a Bunch of Cotton-Yarn, a little moiſtned with their Breath; for Cotton is a Material very apt and fit to preſs into the Hollowneſs of the Work, with the Gold upon it; in Caſe you want Cotton, a Bunch of good fine Wool may do as well.

But, if this Gold be to be laid on within the Hollows of Carved-Work, then you muſt uſe a fine Camels-Hair Pencil, of ſuch a Size as is ſuitable; this, when moiſtned by breathing on it, will take up your Leaf-Gold, and by the Help thereof the Gold may be laid in any hollow Work.

Black-Lead Pencils are of ſo great Uſe in Drawing, in ſome Caſes, that a Painter can very ill want them; as alſo good Chalk.

Chalk. The Chalk muſt be ſuch as is of a ſoft Grain, that will eaſily ſpend itſelf on the Work you draw upon; if the Chalk be of a hard ſtony Nature, it will ſpoil whatever you draw upon, for you muſt preſs ſo hard to make it ſpend itſelf, that the Work will be full of deep Races, not to be after obliterated; a great Damage to the Beauty of the Work.

11. For Black-Lead Pencils; thoſe that are right good, are not eaſy to be gotten; therefore, that you may not be decieved in the Choice of them, take Notice, that the beſt Black-Lead Pencil, is that, that ſpends its Colour freely, and draws Black with an eaſy and light Stroke: The Goodneſs of the Lead may alſo be known by the Grain of it; the beſt Lead, if you ſhave off a little of it with a ſharp Knife, will appear ſmooth and ſhining as Glaſs, not hollow or ſpungy; that Lead that, when cut, appears not with a good Glaſs, is of a dull Colour, and of a hollow ſpungy Grain, is of little or no Value, for the Grain is ſo hard, it will never ſpend Black, nor draw free.

Beſides this, the common Pencils of the Shops are made up ſo deceitfully, that they are not good Lead half Way up the Stock; the beſt Way, therefore, is to buy Black-Lead in the Lump at the Colour-Shop, and with a fine Spring-Saw, cut it into Scantlings of the Bigneſs of a Quill, into which you may fit it; and having faſtened it in with Glue, it will be found much better and cheaper, than to buy them at the Shops.

12. Beſides all theſe before-mentioned, there will be required, as neceſſary for Painting, Braſs-Compaſſes, for ſetting out and proportioning your Work; they alſo aſſiſt you much in Drawing all Figures that have a Circular-Form: There is Need alſo of Rulers of ſeveral Lengths; as alſo Squares, Crucibles to burn Colours, and Bladders for Oil.

The Value of ſuch of the foremention'd Particulars, as are to be bought ready fitted.

A Marble-Stone for Grinding, according to its Size and Bulk, will coſt from half a Crown to five Shillings the Stone.

A

A Muller will coſt Eighteen-Pence, or two Shillings.

The largeſt Bruſhes will coſt Six-Pence a-piece, the other Sizes from Four-Pence to one Penny a-piece.

The largeſt Sort of Pencils made with fine Hair, either in Tin-Caſes, or in Wooden-Stocks, from Eight-Pence to Two-Pence a-piece; thoſe incloſed in Swans-Quills, a Penny a-piece; and others in Gooſe or Ducks-Quills are Six-Pence a Dozen, one with another, or a Half-Penny a-piece.

Black-Lead Pencils, the beſt in Cedar-Caſes, will coſt Three-Pence a-piece; but, an Ounce of the fineſt Black-Lead in the Lump, cut out as before directed, will do as much Service as any ſix Pencils; which Ounce of Lead will coſt you about Six-Pence, if it be prime good.

Braſs-Compaſſes are from Eighteen-Pence to ſix Shillings a Pair, according to their Size and Goodneſs; a Pair about eight Inches in the Shank will coſt about two Shillings ſix Pence; a Pair of the ſame Size made with three Points, *viz.* a Steel-Point, a Pen-Point, and a Black-Lead-Point, will coſt you, if well made, ſix Shillings.

Cru-

Crucibles will coſt you about two Pence a-piece, if they are large; the other Sizes are a Penny a-piece, and the ſmalleſt a Half-Penny.

Note, That Grinding-Stone and Muller, and all Kind of Pencils, are to be had at the Colour-Shops; Braſs-Compaſſes and Squares at the Mathematical-Inſtrument Makers; and Crucibles you ſhall find plentiful at the Iron-Mongers in *Foſter-Lane*.

CHAP. II.

A Catalogue of the ſeveral Colours uſed in Painting with Oil; their Nature and Way of Making.

WHITES.

THE Principles of all Whites is the White-Lead; this Colour owes its Original to the common Plummers Lead, of which it only is made; the Manner is thus: At *Venice*, where the greateſt Quantities were, formerly, only made,

made, they take Sheet-Lead, and having cut it into long and narrow Slips, they make it up into Rolls, yet ſo as a ſmall Diſtance remains between every ſpiral Revolution; theſe Rolls they put into Earthen-Pots, ſo ordered, that the Lead may not ſink down above half Way or better in them; theſe Pots have each of them very ſharp Vinegar in the Bottom, ſo full as almoſt to touch the Lead; when the Vinegar and Lead are both conveyed into the Pot, 'tis cover'd up cloſe, and ſo left for a certain Time, in which Space the corroſive Fumes of the Vinegar will reduce the Superficies of the Lead into a white Calx, which they ſeparate by Knocking upon it with a Hammer. A more particular Deſcription of the whole Proceſs, you may find communicated to the Royal-Society, by Sir *Philberto Vernatti*, and Printed in the *Philoſophical Tranſactions*.

Of this Colour there are two Sorts at the Colour-Shop, the one called Ceruſs, which is the moſt pure and clean Part; the other is called by the plain Name of White-Lead: They are Colours that work with very much Eaſe, and will be ground

as

as fine even as the Oil itſelf, in compariſon, if you will take Time enough in the Grinding; it lies very ſmooth, and binds very hard, on what Work ſoever it be laid. If you paint with it any Kind of Timber-Work or Stone, that you would preſerve from the Weather, it is beſt to work it in Linſeed-Oil, for that will bind it extreme hard, if you lay it upon the Work very ſtiff; but, if you uſe White-Lead alone within Doors, 'tis then beſt to mix it with Drying-Nut-Oil; for Linſeed-Oil within Doors will turn yellow, and ſpoil the Beauty of it; which Inconvenience Walnut-Oil made to dry prevents; for that makes it keep a conſtant Whiteneſs.

Beſides White-Lead and Ceruſs, there is another Sort to be met with ſometimes at the Colour-Shops, which they call Flake-White, which is by ſome accounted the beſt White of all others, but the Reaſon of that I don't well underſtand, except it be, becauſe it is ſcarce and dear. This Colour is ſaid to be found only under the Lead of ſome very old Buildings, where Time has, by the Aſſiſtance of ſome ſharp Quality in the Air,

thus reduced the undermoſt Superficies of the Lead in this white Calx, which proves a very good White, but in my Opinion, not exceeding the beſt Ceruſs, which is as white as the other, and a great deal cheaper.

BLACKS.

LAm-Black: This Colour is no other than a Soot raiſed from the roſiny and fat Parts of Fir-Trees; it comes moſtly from the Northern Countries, as *Sweden* and *Norway*; 'tis a Black that is more generally uſed than any other, becauſe of its Plenty and Cheapneſs, and proves a very good Black for moſt Uſes; 'tis of ſo fine a Body, that if tempered only with Linſeed-Oil, it will ſerve to work with, on moſt common Occaſions, without Grinding; but thus uſed, 'twill require a long Time to dry, unleſs you mix much Drying-Oil with it; or, which is better, ſome Verdigreaſe finely ground; this and the Drying-Oil together will make it dry in a little Time. Some add alſo Oil of Turpentine; and without theſe it will not dry in a long Time;

for in the Subſtance of the Colour is contained a certain greaſy Fatneſs, that is an Enemy to Drying; to remedy which, burning in the Fire till it be red-hot and ceaſe to ſmoke, will conſume that Fatneſs, and then it will dry much ſooner; but when 'tis burnt, it muſt then of Neceſſity be ground with the Oil, for elſe 'twill not work fine; for the Fire is of that Nature, that it's apt to harden moſt Bodies that paſs through it. This Colour is uſually made up in ſmall Boxes and Barrels of Deal, of ſeveral Sizes, and ſo brought over to us.

Beſides Lam-Black, there is another Sort of Black, called Lamp, or Candle-Black, and this is the Soot of a Lamp or Candle; which I have heard very good Artiſts commend, as a much better Black for any Uſe than the Lam-Black, it being of a finer Body and brighter Colour; but, I think, not to be gotten in very great Quantities, and therefore uſed only in very fine Work.

Ivory-Black, is made of the Comb-makers Raſpings, and other waſte Fragments of Ivory; theſe are burnt or chared to a black Coal in a Crucible cloſe

ſtopt up. This proves a very delicate Black when ground very fine; you have it at the Shops well prepared, and levigated or ground very fine with Water on a Marble-Stone, and then dried in ſmall Lumps; being thus prepared, 'tis the more eaſily ground in Oil, with which it will lie with as good a Body, as moſt Colours do; but 'tis ſomething dear, and therefore not uſed in any common Work.

Some uſe Willow-Charcoal; this, if ground very fine, does in Oil make a very good Black; but being not ſo eaſy to be gotten as the Lam-Black, 'tis ſeldom uſed.

R E D S.

VErmilion is the moſt delicate of all light Reds, being of itſelf a perfect Scarlet Colour; 'tis made artificially out of Quickſilver and Brimſtone, in the Manner following: Take ſix Ounces of Brimſtone and melt in an Iron-Ladle, then put two Pound of Quickſilver into a Shammy-Leather, or double Linen-Cloth; ſqueeze it from thence into the

melted Brimſtone, ſtirring them in the mean Time with a wooden Spatula, till they are well united; and when cold, beat the Maſs into a Powder, and ſublime it in a Glaſs-Veſſel, with a ſtrong Fire, and it will ariſe into that red Subſtance, which we call Artificial Cinaber, or Vermilion. The whole Proceſs you may ſee more at large in *Lemery*'s Chymiſtry. This Colour is of a delicate fine Body, and if Pains be beſtowed on it, 'twill grind as fine as the Oil itſelf; and then it makes a moſt excellent Colour: But if it be not ground very fine, the Glory of it will not appear, for it will look dull and work coarſe; but if it be ground very fine, no Colour in the World looks better, nor works ſmoother, nor bears a better Body than Vermilion does, nor goes farther.

Lake, eſpecially the richeſt Sorts, is the beſt of all dark Reds, being a moſt pure Crimſon; 'tis a Colour that will grind very fine, and lies with a good Body, but there muſt be good Store of Pains taken with it in the Grinding, for if it be not well and thoroughly ground, its Colour will want much of its Glory;

and

and beſides this, 'twill work with ſome Difficulty, being apt to cling together like a Jelly; ſo that 'twill be apt to cling up together, after 'tis laid on, juſt as you ſee warm Water does upon a greaſy Trencher, when 'tis waſhed in it; to prevent which, grind it well, and temper it as ſtiff as you can well work it. Of this Colour there be divers Sorts at the Colour-Shops, very different, ſome being of a more dead and pale Colour; 'tis made of the Tincture of a Vegetable, as ſome ſay, but what, or how done, I cannot as yet learn; only Note, that the beſt Sorts come from *Venice* and *Florence*.

Red-Lead is the lighteſt of all Reds now in Uſe; 'tis a ſandy harſh Colour, and ſuch an one, as is not eaſily ground very fine, although you beſtow much Labour on it; this Colour is made out of common Lead, by firſt reducing it to a Litharge, and that Litharge being afterward ground to a Powder in a Mill, is afterward conveyed into a hot Furnace, for that Purpoſe, where 'tis continually kept ſtirring with an Iron-Rake, till it has attained to the Colour of a fine, pale

Red. The whole Proceſs you may ſee more at large in Mr. *Ray*'s Appendix to his Catalogue of hard *Engliſh* Words. Note, that this, tho' it be a Sandy Colour, yet it bears a very good Body in Oil, and binds very faſt and firm, being alſo a quick Drier.

Spaniſh Brown, is a dark, dull Red, of a Horſe-Fleſh Colour; 'tis an Earth, it being dug out of the Ground, but there is ſome of it of a very good Colour, and pleaſant enough to the Eye, conſidering the Deepneſs of its Colour: 'Tis of great Uſe among Painters, being generally uſed as the Firſt or Priming Colour, that they lay on upon any Kind of Work, being cheap and plentiful, and a Colour that works well, if it be ground fine, as you may do with leſs Labour than ſome better Colours do require. The beſt Sort is the deepeſt Colour, and freeſt from Stones; the other Sorts are not ſo good to give a Colour to the Eye, but yet they ſerve as well as any others for a Priming Colour.

YELLOWS.

YEllow-Oaker is of two Sorts, one called Plain-Oaker, and the other Spruce-Oaker, the one is much a lighter Colour than the other; 'tis a certain concrete, or ſtony Subſtance, found among ſtiff Clays in divers Parts of this Kingdom; but thoſe Parts that contain moſt of it, is the *Shot-over-Hills* near *Oxford*, from whence moſt of the Yellow-Oaker, that is ſold in *England*, is dug out; 'tis a Colour, that with Pains, will grind very fine; it bears an excellent Body, and reſiſts the Weather well.

Pink-Yellow, is the Tincture of a Vegetable, whoſe Subſtance being reduced to a Mucilage, and after dried, becomes a good light Yellow, a little inclining to a Green; 'tis a Colour that grinds very eaſy, and bears a good Body.

Orpiment is that Colour that ſome call Yellow-Arſenick; 'tis a good Colour for ſome Uſes; but very troubleſom to grind, being a Mineral ſtony Subſtance of a poiſonous Nature; therefore take care that the Fumes of it don't offend

the Brain in the Time of Grinding.

Maſticote, is a good Light-Yellow for moſt Uſes, eſpecially in making Greens, of which ſeveral Sorts may be framed out of this Colour, being mixt with Blues; 'tis a Colour that grinds fine, and bears a good Body.

GREENS.

VErdigreaſe is the beſt and moſt uſeful Green of all others; 'tis a Colour made out of Copper, being no other than the Ruſt of that Metal promoted by the Fumes of ſour Wine, and the Rape of Grapes; the Proceſs of which, as 'tis performed at *Montpelier* in *France* (where the Beſt is ſaid to be made) you may find in Mr. *Ray*'s Travels, *pag.* 454. 'Tis a delicate Green inclining to a Blueiſh, but with a little Pink-Yellow, it makes the delicateſt Graſs-Green in the World; 'tis a Colour that will grind very fine, but not without ſome Pains; and when ground fine, it lies with a good Body, and works well. At the Colour-Shops there is a Sort of it that they call Diſtilled-Verdigreaſe, being a

Sort

Sort that is wholly purified from Droſs and Filth, of good Uſe in Fine-Work, but too dear in Vulgar-Painting.

Green-Bice is a Colour of a Sandy Nature, and therefore not much uſed; Green-Verditer is alſo a Sandy-Colour, neither of them bear any good Body, and are ſeldom uſed, except in Land-ſkip, where Variety is required.

B L U E S.

BLue-Bice bears the beſt Body of all bright Blues uſed in common Work, but 'tis the Paleſt in Colour; it works indifferent well, but inclines a little to be Sandy, therefore it requires good Grinding, and that on a very hard Stone; 'tis a Blue that lies beſt near the Eye, of any now in Uſe, except Ultra-Marine, a Colour produced from the Tincture of Lapis-Lazuli; the Proceſs of doing which you may find in a Book, called, *Modern Curioſities*. But this is ſo vaſtly dear, that 'tis not to be uſed except in Pieces of great Price.

Blue-Verditer is a Colour of no good Body, but ſomething Sandy, and of no

very good Colour of itſelf, being apt to turn greeniſh, and being mixt with Yellow, makes a good Green.

Indigo is a dark Blue, if workt by itſelf; to remedy which, Whites are uſually mixt, and then it makes but a very faint Blue. This Colour is the Tincture of a Vegetable called by that Name, much growing in both the *Indies*, the Leaves of which being put into wooden Ciſterns, filled with Water, are often violently ſtirred about, till the greateſt Part be reduced to a Slime, or Mucilage, which being ſeparated from the Water, when ſunk to the Bottom, and dried, produces that Subſtance which we call Indigo; 'tis a Colour that grinds very fine, and lies with a good Body, and is very much uſed in vulgar Painting.

Note, That the longer this Colour is ground, the more beautiful and fair it looks.

Smalt is the moſt lovely Blue of all others, if it lie at a Diſtance, but it muſt be only ſtrowed on upon a Ground of White-Lead; for it is a Colour that carries no Body in Oil, it is ſo ſandy; beſides,

beſides, Oil changes the Colour, and makes it look quite black, except Whites be mixed, and they ſpoil the Beauty of the Colour and make it faint; therefore the beſt Way to lay it on is by ſtrowing (as I ſhall ſhow in the following Work) and then there is not a more glorious Colour in the World.

Note, That of this Colour there are two Sorts, the one much finer than the other, but the Coarſeſt gives the moſt glorious Colour of all, if lookt on at a Diſtance, for near the Eye the Beauty is not ſo great; the Fineſt is that which is called Oil Smalt, which if ground with White Lead, may be laid in Oil; but it bears not a good Body, and beſides works with much Difficulty.

Umber is a Colour that really has no Affinity with the others before-mentioned, being neither a White, Black, Red, Yellow, Blue or Green, yet is a Colour of as great Uſe as any of the reſt in vulgar Painting; 'tis an Earth or Mine, dug out of a certain Iſland in the *Mediterranean-Sea*, being of the Complexion of that which among us is called a Hair-Colour; it grinds very fine, and bears

the

the beſt Body of any Earthy-Colour that's now in Uſe, and when burnt becomes the moſt natural Shadow for Gold of all others, and with a Mixture of White, it reſembles the Colour of New Oaken-Wainſcot the neareſt of any Colour in the World; it dries quickly, and with a good Gloſs.

A Term Explained in the fore-going Notes, about bearing a Body.

Some may ſay, What is to be underſtood by a Colour's bearing a Body? I ſay then, to bear a Body, is, to be of ſuch a Nature as is capable of being ground ſo fine, and mixing with the Oil ſo intirely, as to ſeem only a very thick Oil of the ſame Colour; of this Nature are White-Lead, and Ceruſs, Lam-Black, Ivory-Black, Vermilion, Red-Lead, Lake, Pink, Yellow-Oaker, Verdigreaſe, Ultra-Marine, Indigo, Blue-Bice, Umber, and Spaniſh-Brown: Blue-Bice and Red-Lead, indeed, are not ſo fine as the reſt, but yet ſo fine as they may be ſaid to bear a very good Body. All theſe may be ground ſo fine as to be like,

like, even Oil itſelf, and then they alſo may be ſaid to work well, ſpreading ſo ſmooth, and covering the Body of what you lay it upon, ſo intirely, as that no Part will remain viſible where the Pencil hath gone, if the Colour be work'd ſtiff.

Whereas, on the contrary, Verditers and Smalts, with all the Grinding imaginable, will never be well-imbodied with the Oil, nor work well; indeed, Bice and Red-Lead will hardly grind to an Oily Fineneſs, nor lie intirely ſmooth in the Working, yet may be ſaid to bear an indifferent Body, becauſe they will cover ſuch Work very well that they are laid upon; but ſuch Colours as are ſaid not to bear a Body, will readily part with the Oil, when laid on the Work; ſo that when the Colour ſhall be laid on a Piece of Work, there will be a Separation, the Colour in ſome Parts, and the clear Oil in others, except they are temper'd extream thick.

CHAP.

CHAP. III.

Of the Burning of Colours, or Preparing of them that require to be ſo uſed.

OF this Nature there be divers Sorts; as, firſt, Lam-Black, a Colour of ſo greaſy a Nature, that except it be burnt, 'twill require a long Time to dry.

Secondly, Umber, if you intend it for the Colour of a Horſe-Hair; or to be a Shadow for Gold: Then Burning fits it for that Purpoſe, by making it brighter and darker.

Lam-Black muſt be burnt, or rather dried thus: Put it into an Iron-Ladle, or a Crucible, and ſet it over a clear Fire, letting it remain till it be red-hot, or ſo near it, that there is no manner of Smoke ariſes from it.

Umber muſt only be put into the naked Fire in large Lumps, and not taken out till they be throughly red-hot: If you are more curious, you may incloſe it in a Crucible, and then put it into the Fire till it be red-hot; then take

take it out, and when cold, put it up for Uſe.

Ivory muſt be burnt thus: Fill two Crucibles with Ivory-Shavings, then clap their two Mouths together, and bind them faſt with an Iron-Wire, and lute the Joints cloſe with Clay, Salt, and Horſe-Dung, well beaten together; then ſet it in a Fire, covering it all over with Coals, and let it remain therein, till you are ſure the Matter incloſed in the Crucibles be throughly red-hot; then take it from the Fire, but open not the Crucibles till they are perfectly cold; for if you ſhould open them while hot, the Matter would turn to Aſhes; the ſame will be done if the Joints are not luted cloſe, for 'tis only the Excluſion of all Air, that prevents any Matter whatever that's burnt to a Coal, from turning to a white Aſh, and preſerves the Blackneſs.

CHAP.

CHAP. IV.

How to waſh ſuch Colours, as for their Grittineſs are not otherwiſe to be made fine enough for certain Uſes.

SOme Colours are of ſuch a gritty, ſandy Nature, that it's impoſſible to grind them ſo fine as ſome curious Works do require; therefore, to get forth the Flower and Fineneſs of the Colour, you muſt do thus: Take what Quantity of Colour you pleaſe to waſh, and put it into a Veſſel of fair Water, and ſtir it about till the Water be all coloured therewith; then if any Filth ſwim on the Top of the Water, ſcum it clean off, and when you think the Groſſeſt of the Colour is ſettled to the Bottom, then pour off that Water into a ſecond Earthen-Veſſel that is large enough to contain the firſt Veſſel-full of Water four or five Times; then pour more Water into the firſt Veſſel, and ſtir the Colour that remains till the Water be thick; and after it is a little ſettled, pour that Water alſo into

into the ſecond Veſſel, and fill the firſt Veſſel again with Water, ſtirring it as before: Do thus ſo often till you find all the Fineſt of the Colour drawn forth, and that none but coarſe, gritty Stuff remains in the Bottom; then let this Water in the ſecond Veſſel ſtand to ſettle till it be perfectly clear, and that all the Colour be ſunk to the Bottom; which when you perceive, then pour the Water clear from it, and reſerve the Colour in the Bottom for Uſe; which muſt be perfectly dried, before you mix it with Oil to work.

The Colours thus ordered, are Red-Lead, Blue and Green-Bice, Verditer Blue and Green, Smalt, and many times Spaniſh-Brown, when you would cleanſe it well for ſome fine Work, as alſo Yellow-Oaker, when you intend to make Gold-Size of it.

Take Notice alſo, That unleſs you intend to beſtow ſome Coſt, you need not be at the Trouble to waſh your Colours, but uſe them for coarſe, ordinary Work, as you buy them at the Shops.

CHAP.

CHAP. V.

How to grind Colours with Oil.

WHen you come to grind Colours, let your Grinding-Stone be placed about the Height of your Middle; let it ſtand firm and faſt, ſo that it joggle not up and down; then take a ſmall Quantity of the Colour you intend to grind (two Spoonfuls is enough) for the leſs you grind at a Time, the eaſier and finer will your Colour be ground; lay theſe two Spoonfuls of Colour on the Midſt of your Stone, and put a little of your Linſeed-Oil to it, (but be ſure you put not too much at firſt) then with your Muller mix it together a little, and turn your Muller 3 or 4 Times about, and if you find there be not Oil enough, put a little more to it, and grind it till it come to the Conſiſtence of an Ointment; or appears as free from Sandineſs, or any Sort of Lumps, as the moſt curious Sort of Butter; for then it grinds much

much better and ſooner, than when it's ſo thin as to run about the Stone: You muſt oftentimes, in the Grinding, bring your Colour together with a Piece of Lanthorn-Horn, and with the ſame keep it together in the Middle of your Stone; when you find you have ground it fine enough by the continual Motion of your Muller about the Stone, holding it down as hard as your Strength will permit (which you muſt alſo move with ſuch a Sleight, as to gather the Colour under it) and that no Knots nor Grittineſs remains, but be as fine even as Butter, or as the Oil itſelf, then with your Horn cleanſe it off the Stone into a Gally-Pot, Pan, or whatever elſe you deſign to put it into, and then lay more Colour on your Stone, and proceed to grinding as before: Do ſo thus often till you have ground as much of this ſame Colour, as ſhall ſerve your Occaſions; and if you grind other Colours after it, let the Stone be well cleanſed from the firſt Colour, with a Cloth and fine dry Aſhes, or Sand.

Some grind at one Time, ſo much of every

every Colour, as may be ſufficient to ſerve a long Time together, which they keep tied up cloſe in Ox or Sheeps Bladders; and by this Method a Man ſhall prevent the Daubing of himſelf too often by Grinding of Colours.

Thoſe that liſt not to be at the Trouble of Grinding of Colours themſelves, may have of any Sort, ready-ground, at the Colour-Shops, at reaſonable Rates, either in ſmaller or larger Quantities as they have Occaſion, from an Ounce to an Hundred-Weight or more.

CHAP. VI.

How to order Colours for Working, after they are ground.

WHen you have ground your Colours (if you obſerve my Directions in Grinding) they will be too thick for Uſe without the Addition of more Oil; therefore, when you have ground thoſe Colours you deſire, and intend to uſe them, either ſimply by themſelves,

themſelves, or compounded with others, according as your Fancy or Occaſions require, you muſt then add more Oil unto them, till they be ſo thin as not to let the Ground on which they are laid be ſeen through them; for if it be ſo thin as to let the Ground be ſeen through them, or to run about when it be laid on, it is not good, and will require to be coloured the oftner before your Work be perfect and ſubſtantial; whereas, if your Colour be as ſtiff as it can well be wrought, your Work will be done with more Speed; once Doing being then more than three Times Doing with thin Colour.

Here, by the Way, take Notice of the Fraud and Deceit of common Painters, who commonly agree to do Work by the Yard at a certain Price, and the Work to be coloured three Times over, which they commonly paint with ſuch thin Colour (to avoid the Labour of Grinding, a little Colour ſerving a great deal of Oil, and beſides it works with leſs Pains, and takes up leſs Stuff) that all three Times doing over is not ſo ſubſtantial, as one Time would be, if the Colour had

had a thick and ſubſtantial Body: And I'll maintain, that three Times Colouring with ſubſtantial and well-bodied Colour, ſhall laſt ten Times as long as that which is wrought thus ſlightly by common Painters.

In mixing Oil with your Colours, take this further *Note*, That if the Colour to be mixt be your Priming Colour, (that is, the firſt Colour you lay on) it ought to be made very thin, that it may have Oil enough to pierce into the Wood, which is much for its Preſervation; but after your firſt Colour is laid, let your next be thicker, as before is taught.

Some Colours will be a long Time before they be dry, if mixt only with plain Linſeed-Oil; to remedy which, there is a Way to prepare Linſeed-Oil by Art, to make any Colour dry that is mixt with it. As for Example, To a Quart of Linſeed-Oil, add two Ounces of the Litharge of Lead (which may be had at every Drugſter's Shop) powder it finely before you put it to the Oil; when you have mixt it, ſet it on the Fire in an Earthen-Pan, and let it boil for near an Hour,

Hour, more or leſs, till the Oil be grown thick and fat, and almoſt of the Thickneſs of Treacle that comes from Sugar; then ſet it a little on the Fire, and ſtir it well, then put out the Flame, and let the Matter ſtand till it be throughly cold, and the Litharge well ſetled to the Bottom; then pour off the clear Oil, and keep it for Uſe in a Bladder cloſe tied up; for want of that, in a Glaſs Bottle.

When you mix up your Colours for Working, put three Parts of Plain Linſeed-Oil, and one Part of this Drying-Oil, together in a Pan, and mix them well together, and with this temper up your Colours; this Fat-drying-Oil ſhall not only make your Colours dry ſooner than Plain-Oil, but it ſhall alſo add a Beauty and Luſtre to the Colours; ſo that they ſhall dry with a Gloſs, as if they had been varniſhed over.

Some Colours indeed don't need to have their Drying haſtened by a fat Oil; ſuch are Red-Lead, Verdigreaſe, and Umber; theſe are very drying in their own Nature, but yet fat Oil added to theſe alſo, adds a great Beauty and Luſtre to the Colour.

Some

Some Painters, to make their Colours dry, take Copperas, and having beaten it to Powder, burn it in a Fire-Shovel, as People do when they burn Allom; that is, they ſet it on the Fire, till being melted with the Heat, it being continued thereon ſo long, till all the Moiſture be exhaled, and the Matter remain a dry white Calx; ſome of this Powder of Burnt-Copperas, being added to the Colours in Grinding, ſhall make the Colour dry very well.

The Way before-recited for Making of Drying-Oil, has one Inconvenience in it, that it makes the Oil of a Deep-Reddiſh-Colour, which in ſome Caſes may alter the native Beauty of ſome Colours, as Whites, which be apt to become Yellow, alſo Blues may by this Means become Greeniſh.

To prevent this, a Drying-Oil may be prepared, as ſhall be clear and White of Colour, in the Manner following.

Put the afore-mentioned Quantity of Linſeed-Oil to the like Quantity of Litharge; put the Mixture into a Glaſs, and ſet it in the hot Sun, for a Month, in the Summer-Time, ſtirring the Litharge

tharge and the Oil well together, twice a Week, during the whole Time, and you ſhall not fail in that Time to obtain an Oil, very white and clear (for the Sun takes away all Colour, either from Linſeed, or Walnut-Oil) but alſo, it will become in that Time very fat and thick, and attain to a very drying Quality.

By the ſame Methods, may Nut-Oil be made too dry as well as that of Linſeed, it being preferred before that of Linſeed, for all White-Painting that is not expoſed to the open Air; for 'tis obſerved, that in all cloſe Places, Linſeed Oil is apt to make White-Lead turn Yellow.

Take Notice, That all ſimple Colours uſed in Houſe-Painting, appear much more beautiful and luſtrous, when they appear as if glazed over with a Varniſh, to which both the drying Oil before-mentioned contributes very much, and alſo the Oil of Turpentine, that the Painters uſe to make their Colours dry ſoon; but Experience teaches, that ſome good clear Turpentine, diſſolved in the aforeſaid Oil of Turpentine, before it

be mixt with the Oil-Colours, ſhall make thoſe Colours ſhine when dry, and preſerve their Beauty beyond all other Things; drying with an extream glaſſy Surface, and much more ſmooth than Oil alone; and ſhall alſo better reſiſt the Injuries of Air and Weather, provided too much be not put in.

CHAP. VII.

How to make a Size, for the Gilding both with Gold and Silver.

THE Operation is thus, for the making of Gold-Size: Take Yellow-Oaker and grind it on a Stone with Water till it be very fine, and afterwards lay it on a Chalk-Stone to dry; this is the common Way: Or, you may waſh it, as is taught in the fourth Chapter. For, when it is waſhed, to be ſure, nothing but the pureſt of the Colour will be uſed; and beſides, it's done with leſs Daubing.

When your Oil and Oaker are thus pre-

prepared, you muſt grind them together, as you do other Oil-Colours, only with fat Drying-Oil; but it's ſomething more laborious Work, and muſt be ground very fine, even as Oil itſelf: For the finer it is, the greater Luſtre will your Gold carry that is laid on it.

Here *Note*, That you muſt give it ſuch a Quantity of your fat Oil, that it may not be ſo weak as to run when you have laid it on, nor ſo ſtiff, that it may not work well; but of ſuch a competent Body, that after it is laid on, it may ſettle itſelf ſmooth and glaſſy; which is a chief Property of good Size.

Silver-Size is made by Grinding of White-Lead with fat Drying-Oil; ſome adding a very little Verdigreaſe, to make it bind.

The Practice of Gilding with either Gold or Silver, I ſhall refer to Chapter XIV.

CHAP. VIII.

The Practice of Working Oil-Colours, and Painting of Timber-Work, after the Manner of Vulgar Painting.

THat which I here call Vulgar Painting, is only the Way and Manner of Colouring all Manner of Wainſcot, Doors, Windows, Poſts, Rails, Pails, Gates, Border-Boards for Gardens, or any other Material, that requires either Beauty, or Preſervation from the Violence of Rain, or Injury of Weather; the Method of Doing which, I ſhall lay down as plain as I can. Suppoſe, then, that there be a Set of Paliſadoes, or a Pair of Gates, or ſome Poſts and Rails to paint, and I would finiſh them in a Stone Colour; firſt look over the Work, and take Notice whether the Joints be open in the Gates, or whether there be any large Clefts in the Poſts; for if theſe are not ſecured, the Wet will inſinuate itſelf into thoſe Defects, and make the quicker Diſpatch

Diſpatch in ruining the whole Work; let the firſt Buſineſs therefore be, to ſtop up theſe Places ſmooth and even, with a Putty made of Whiting and Linſeed-Oil, well beaten together on the Grinding-Stone, with a Wooden-Mallet, to the Conſiſtence of a very ſtiff Dough, and with this let all the Crannies, Clefts, and other Defects be perfectly filled up, that it may be equal to the Surface of the Stuff; then, proceed to the Priming of the Work, with ſome Spaniſh-Brown well ground, and mixt very thin with Linſeed-Oil; with this do over the Work, giving it as much Oil as 'twill drink up; this in about two Days will be indifferent dry, then if you would do the Work ſubſtantially, do it over again with the ſame Priming-Colour; when this is thorough dry, then take White-Lead well ground and tempered up, not too thin, for the ſtiffer you work it, the better Body will be laid on, and the thicker Coat of Colour that your Timber is covered withal, the longer 'twill laſt; let this Colour be well rub'd on, and the whole Surface of the Work be ſo intirely covered, that there remain no Crick nor

Corner bare, which you may eaſily do by jobbing in the Point of a Briſtle-Bruſh: Let this firſt Colouring dry, and then go over it a ſecond Time, and if you pleaſe, a third alſo; the Charge will be a little more, but the Advantage will be much more great.

This Courſe is ſufficient for any Kind of Timber-Work, that requires only a plain Colour; whether you thus cover the Work with a Stone-Colour, or elſe with a Timber-Colour in Umber and White, or a Lead-Colour with Indico and White; that with White being the cheapeſt of the three by much: Nay, I have known ſome lay over their Work only with a Coat of Spaniſh-Brown, by Tempering it up more ſtiff than was done for the two firſt Primings; which in ſome Reſpects is cheapeſt of all, and preſerves the Timber, perhaps, as well as any. Now he that is able to bring the Work thus far on, has proceeded to the higheſt Pitch of that Vulgar Painting, that aims at Preſervation beyond Beauty, though ſomething of Beauty is neceſſarily included in this alſo; but this is not all, for he that is arrived thus far, is in a fair Way

Way to other Perfections in the Art of Painting. But, for the Pannelling of Wainſcot with its proper Shadows, and for imitating Olive and Walnut-Wood, Marbles, and ſuch like; theſe muſt be attained by ocular Inſpection, it being impoſſible to deliver the Manner of the Operation by Precept, without Example; and I am bold to affirm, that a Man ſhall gain more Knowledge by one Day's Experience, than by a hundred ſpent to acquire it ſome other Way.

I adviſe, therefore, all thoſe that deſire an Inſight into this Buſineſs, to be a little curious, if Opportunity offers, in obſerving the Manner of a Painter's Working, not only in Grinding his Colours, but alſo in Laying them on, and Working in them; in all theſe, obſerving the Motion of his Hand, in the Manage of any Kind of Tool; and by this Means, with a little Imitation, joined to the Directions here given, I doubt not, but in a ſhort Time, you may arrive to great Proficiency in the Buſineſs of Vulgar Painting.

Note, That if, when you have made uſe of your Colours, there be Occaſion

of a ſmall Cecation till the Work be finiſhed; in this Caſe 'tis beſt to cover the Colour in your Pots with Water, for that will prevent their drying, even in the hotteſt Time.

And for your Pencils, they ought, ſo ſoon as you have done Working, to be well waſht out in clean Linſeed-Oil, and then in warm Soap-Suds; for if either Oil or Colours be once dried in the Bruſh or Pencil, 'tis ſpoiled for ever.

It has been obſerved, that Timber laid over with White, when it has ſtood ſome Time in the Weather, the Colour will crack and ſhrink up together, juſt as Pitch does, if laid on any Thing that ſtands in the Sun; the Cauſe of this is for that the Colour was not laid on with a ſtiff Body, able to bind itſelf on firm and faſt.

For the Cloſe of this Chapter take Notice, That, if you ſhall at any Time have Occaſion to uſe either Bruſhes that are very ſmall, or Pencils, as in many Caſes there will be Occaſion, you ought then to diſpoſe of the Colours you uſe upon a Pallet (which is a wooden Inſtrument, eaſy to be had at any Colour-Shop)

Shop) and there work and temper them about with your Pencil, that the Pencil may carry away the more Colour; for you are to note, That, if a Pencil be only dipt into a Pot of Colour, it brings out no more with it than what hangs on the Outſide, and that will work but a little Way; whereas, if you rub the Pencil about in the Colour, on the Pallet, a good Quantity of Colour will be taken up in the Body of the Pencil; and beſides all this, you may work your Pencils better to a Point on a Pallet, than you can do in a Pot; the Point of a Pencil being of greateſt Uſe in divers Caſes, eſpecially in Drawing of Lines, and all Kinds of Flouriſhing.

CHAP. IX.

What Colours are moſt ſuitable, and ſet off beſt one with another.

BY Setting off beſt, I mean their making each other look moſt pleaſant; for two of ſome particular Co-

lours put together, or one next the other, ſhall add much to the Beauty of each other, as Blue and Gold, Red and White, and ſuch like: But, Green and Black put together, look not ſo pleaſant; neither do Black and Umber, or Haw-Colour, and ſuch like.

All Yellows, then, ſet off beſt with Blacks, with Blues, and with Reds.

All Blues ſet off beſt with Whites and Yellows.

Greens ſet off well with Blacks and Whites.

Whites ſet off well enough with any Colour.

Reds ſet off beſt with Yellows, and Whites, and Blacks.

Gold looks well upon a White-Ground, eſpecially if the Matter to be gilt be carved.

Gold and Black alſo ſhew very well.

Gold on Timber-Colour, ſhews alſo very well.

So does Gold and a Horſe-Fleſh Colour, made with the brighteſt Spaniſh-Brown.

But the moſt glorious Ground of all others for Gold, are the Vermilion-

Red, the Smalt-Blue, and the Lake, laid on a light Ground.

Of ſome Colours that ariſe from Mixture.

Aſh-Colour is made of White-Lead and Lam-Black; if a deep Aſh-Colour, then take the more Black, but if a light one, then take but little Black, and moſt White.

A Lead-Colour is made of Indico and White.

A Colour reſembling new Oaken Timber, is made of Umber and White-Lead.

A Fleſh-Colour is compounded of Lake, White-Lead, and a little Vermilion.

For a Buff-Colour, take Yellow-Oaker and White-Lead.

For a Willow-Green, take Verdigreaſe alone.

For a light Willow-Green, take Verdigreaſe and White.

For a Graſs-Green, take Verdigreaſe and Pink.

A Carnation is made of Lake and White.

Orange-Colour, of Yellow-Oaker and Red-Lead.

For a Light-Timber-Colour, mix Spruce Oaker and White, and a little Umber.

For a Brick-Colour, Red Lead, and a little White and Yellow-Oaker.

For a Straw-Colour, take White and a little Yellow-Oaker.

Olive-Wood is imitated with Oaker, and a little White veined over with burnt Umber.

Walnut-Tree is imitated with burnt Umber, and White vein'd over with the ſame Colour alone; and in the deepeſt Places, with Black.

Pails and Poſts are ſometimes laid over only with White, which they call a Stone-Colour.

Sometimes Poſts and Pails are laid over with Indico and White, which is called a Lead-Colour.

Window-Frames are laid in White, if the Building be new; but if not, then they

they generally are laid in Lead-Colour, or Indico and White, and the Bars with Red-Lead.

Doors and Gates, if painted in Pannels, then the Shadows of a White-Ground are Umber and White; but if laid in a Lead-Colour, then the Shadows are lifted with Black.

'Tis not poſſible to ſet down all thoſe Varieties of Colours, that may be produced by Mixture; they that would ſee more, may peruſe Doctor *Salmon*'s Polygraphice, where they ſhall find great Variety. But thoſe, which I have here given an Account of, are ſufficient for common Painting.

CHAP. X.

Of Painting Sun-Dials; and firſt, of the Plains, on which Dials are to be drawn.

DIal-Plains are of two Sorts, firſt, ſuch as are made on the Wall of a Building; or ſecondly, ſuch as are drawn on Tables.

The firſt Sort, if they are made on Brick-Work, is done by Plaiſtering on the Wall with Lime, Sand, and Hair mixt; this, if well drencht with Linſeed-Oil, after 'tis dry, or as long as it will drink in any, may be durable enough.

But a better Way, is to temper the Lime, Sand and Hair with Linſeed-Oil, which will be no great Charge, but of great Advantage; for this Mixture will equal in Time the Hardneſs of a Free-Stone, and keep the Surface as free from the Injuries of Weather.

If you were to work on a Stone, the beſt Way is to drench the Stone with Linſeed-Oil, till 'twill drink in no more; then ſhall whatever you paint upon it, be the better prepared againſt the Ruins of Time.

Now for Tables of Wood, they being the moſt common, I ſhall give ſuch Directions for the Making of them, as I have always found moſt profitable and fit for this Purpoſe.

The Woods that I find beſt for this Uſe, are the cleareſt Oak, and the reddeſt Fir, provided it be not turpentiny.

Between

Between theſe two Woods, I find little Difference, as to their Alteration by the Weather; both being ſubject to ſplit, in Caſe they are bound, and have not free Liberty to ſhrink with dry Weather, and ſwell with Wet; but as to their Laſting, I judge Oak to be the better: And how long Fir will laſt, when ſecured and defended with Oil-Colours, I have not yet experienced; but we may judge that good Red-Fir, that is hard, will laſt the Age of any Man whatſoever, if it be ſecured as Things of this Nature ought to be.

In Working any of theſe Kinds of Woods, I adviſe, that firſt your Boards be cut to ſuch a Length as you intend your Dial-Board ſhall be of, and ſo many of them as may make up the Breadth deſigned; then, let them be jointed and plained on both Sides, and afterwards ſet to dry (for 'tis obſerved, That tho' Boards have lain in an Houſe never ſo long, and are never ſo dry, yet when they are thus ſhot and plained, they will ſhrink afterwards beyond Belief, if kept dry:) When you think they are dry enough and will ſhrink no more,

let

let them be again ſhot with good Joints, and let every Joint be ſecured by two wooden Dove-Tails, let in croſs the Joint on the Back-ſide; but let this be done, when the Boards are glued together and well dried; and what a Dove-Tail is, every Joiner knows. After it is thus glued, and the Joints be ſufficiently dry, then let the Face of the Board be very well plained and tried every Way, that it may be both ſmooth and true, and the Edges ſhot true, and all of a Thickneſs, as Pannels of Wainſcot are commonly wrought; the Edges muſt be thus true and even, that it may fit into the Rabet of a Moulding put round it, juſt as a Pannel of Wainſcot doth in its Frame: This will give Liberty to the Board to ſhrink and ſwell, without Tearing; whereas, Mouldings that are nailed round the Edge, as the common Way is, do ſo reſtrain the Motion of the Wood, that it cannot ſhrink without Tearing: But, Boards made this Way will laſt a long Time, without either parting in the Joints, or ſplitting in the Wood.

Dials are ſometimes drawn on Plains, lined with Copper or Lead, that they may be free from ſplitting or tearing; but I prefer a Board (if it be made as above is directed) before them in many Reſpects: As firſt, it is much cheaper. Secondly, Lead (and Copper too a little) will ſwell with the Heat of the Sun, and grow in Time ſo hollow, and as it were ſwelled outwards, that the Truth of its Shadow will be much injured. Thirdly, the Colours will be apt to peel from the Metal, and the Dial will by that Means be in Danger to be ſooner defaced, than if it were painted on a wooden Plain.

CHAP. XI.

How to make the beſt Glue, for Gluing the Joints of Dial-Boards.

THis may by ſome, perhaps, be counted needleſs to be inſerted, eſpecially in theſe Parts, where few Men that work in Timber, can be ignorant of it:

But

But ſuppoſe a Gentleman that lives in the Country, have a Mind to have a Dial-Board made, and being not willing to ſend to *London*, imploys his own Carpenter; I muſt tell you, that many Country Carpenters ſcarce underſtand the right Way of making or uſing Glue, to whom ſuch a Direction as this may prove very welcome.

Take, then, a Quart of Water, and ſet it on the Fire, then put in it about half a Pound of good Glue, and boil them gently together on a ſoft Fire, till the Glue be wholly diſſolved, and of a due Conſiſtence; for, if it be too thin, the Wood will ſo drink it up, that there will not remain a Body ſufficient to bind the Parts together; on the contrary, if it be too thick, 'twill not give Way for the Joint to ſhut cloſe enough, to be ſtrongly joined; for though 'tis Glue that makes the Joints ſtick, yet where there is ſo much of it, that the Joint can't cloſe exactly, 'twill never hold firmly.

Whenever you come to uſe Glue, take care that it be firſt throughly hot; for Glue that is not hot, never takes firm hold of the Wood.

Be

Be ſure alſo, that the Subſtance you are to glue, have not been touched with Oil, nor injured with Greaſe; for where theſe have before touched, Glue will never take faſt hold after: But, *Note*, that after a Thing is once glued faſt, no Greaſe nor Oil can then hurt it.

Your Glue being made ready, and the Joints of your Boards ſhot true, ſet both the Faces of the Joints cloſe together, and both alſo turned upwards; then dip a Bruſh in the Glue, and beſmear the Faces of both Joints, as quick as poſſible; then clap the two Faces of the Joint together, and ſlide them longways one upon another, two or three Times, to ſettle them cloſe; and ſo let them ſtand till they are firm and dry.

CHAP. XII.

What Colours are requiſite for the Painting of a Sun-Dial.

FOur Colours are ſufficient for this Work, *viz.* Spaniſh-Brown, for the Priming or firſt Colour.

White-

White-Lead, for the ſecond Colour and finiſhing the Face of the Table.

Vermilion, for Drawing of the Hour-Lines.

And Lam-Black, for the Figures in the Margent, reſpecting the Lines of every Hour, if it be a plain Dial.

But if you intend to gild the Dial, and the Figures, then there is required ſome others, as Gold, and the Size to lay it on, and Smalt for a Blue-Ground, if you intend a rich Colour: But ſome lay the Ground, where the Figures are gilt, with Vermilion; and that ſhews well, if the Figures are liſted with Black, and a Black Moulding round the Dial.

The next Particular, ſhould be the Practice of Painting the Dial, but before that can be done, the Draught muſt be drawn; and, therefore, I think a Word of Advice may not be unſeaſonable, if it directs you to the beſt Authors, that have written of that Subject.

To which Purpoſe, I place firſt, *Stirrup*'s Dialling; as being of excellent uſe, to acquaint a young Learner with the Knowledge of the Sphere.

The

The next in order ſhall be *Collin*'s Dialling; a Book of great Worth throughout.

The third, *Leybourn*'s Dialling; in which you have the beſt Ways for Drawing Eaſt and Weſt-Dials, and far Decliners: He is excellent alſo in the Inſtrumental Way.

The fourth, is *Collin*'s Sector on a Quadrant; in which you have communicated the Cut of a Scale, that, by knowing the Declination, gives all the reſt of the Requiſites of an Upright-Decliner, by Inſpection only, with as great Exactneſs, as by the niceſt Calculation: Beſides, it teaches the Way of Drawing the Hours of a Dial by the Tangent-Line, and alſo by the Scale of Hours; two of the beſt and moſt expeditious Ways that ever were yet found out.

CHAP. XIII.

The Practice of Painting Sun-Dials.

WHen, according to the Rules given in the Books afore-mentioned, you

you have drawn on Paper, the Draught of your Dial, and that your Board be ready, and your Colours prepared according to the Directions before given, you muſt in the Painting of your Dial proceed thus: Take Spaniſh-Brown, that is well ground and mixed ſomewhat thin, and with a large Briſtle-Bruſh, dipt therein, colour your Board or Plain all over, both on the Back as well as Foreſide, ſo that you leave no Part uncoloured; this is called the Priming of your Dial: When this firſt Colour is dry, do it over again with more of the ſame Colour, tempered ſomewhat thicker; and when this is alſo dry, you may, if you pleaſe, do it over again with the ſame Colour; your Work will be the ſubſtantialler, and laſt longer.

When this laſt Time of Colouring with your Red-Lead be dry, then with White-Lead colour the Face of your Plain over; and when it is dry, work it over again three or four Times more, ſucceſſively, after each Drying; ſo ſhall the Face of your Plain be ſufficiently defended againſt the many Years Fury and Violence of Weather.

When

When the laſt Colouring of your White be dry, you muſt draw on your Plain (with a Black-Lead Pencil) a Horizontal-Line, ſo far diſtant from the upmoſt Edge of your Dial, as your Diſcretion ſhall think fit, or your Experience finds to be moſt becoming your Plain; then ſet out the Margin of your Dial with Boundary-Lines, for the Hour, half Hour, and Quarter Diviſions of your Dial (as in moſt Dials you ſee is done:) When you have thus ſet out the Margin and Boundary-Lines of your Dial, then take your Paper-Draught fairly drawn, and place the Horizontal-Line, which you before drew on your Plain; in doing of which, obſerve to place the Center according as the Situation of your Plain, for Convenience Sake, requires. Thus, if your Dial be a full South-Dial, then let the Center be exactly in the Middle of your Plain: But if your Dial decline from the South, either Eaſt or Weſt, then place not the Center of your Draught in the Center of your Plain, but nearer to one Side or other of it, according as it declines, having alſo reſpect to the Quantity of its Declination.

For

For Example: If your Dial decline Eaſtwards, then let the Center of your Draught be plac'd between the Center and the Eaſtern Side of your Plain; the Quantity thereof muſt be according as your Dial declines; if it decline but a little, then place the Center of your Draught but a little from the Center of your Plain; and if it declines much, place the Center of your Draught the more out of the Center of your Plain: The Reaſon of my adviſing this, is, that by ſo doing, you may gain a greater Diſtance for thoſe Hour-Lines, which in Declining-Plains fall nearer together on one Side than they are on the other; for which Reaſon, I always uſe it in all Declining-Plains, except they decline far, as between 80 and 90 Degrees: For, then, we commonly draw them without Centers, to gain the more Diſtance for the Hour-Lines.

When your Paper-Draught is thus artificially placed on the Plain, and faſtened with Pins or ſmall Tacks; then let the Draught thereof be transferred to the Plain, by laying a Ruler over every Hour, half Hour, and Quarter Diviſion:

Diviſion: And where your Ruler ſhall cut or interſect the Boundary-Lines of your Margin, there make Marks, by drawing Lines with a Black-Lead Pencil, of ſuch a Length as each Diviſion requires (or is deſigned by your Boundary-Lines) obſerving always to draw the Hour, and half Hour Lines quite through your Margin, that they may be Guides for the right Placing the Figures, and for a ſmall Spot that is uſually placed in the Margin, right-againſt the half Hour.

When your Dial-Draught is thus transferred to the Plain itſelf, you muſt not forget to draw the Subſtile-Line, according as it lieth in your Draught, to be your Guide for the right Placing your Stile or Cock; for you muſt in every Particular be very exact, or elſe your Dial cannot be good.

When you have taken every Thing that is required from your Draught, and have transferred it to the Plain, then take your Draught off, and with Vermilion, very well ground and prepared, as before is taught, let the Boundary-Lines of your Dial, as alſo the Hour,

half Hour, and Quarter Diviſions be drawn therewith; let your Colour be as thick and ſtiff as you can poſſibly work it, ſo as to draw a clear and ſmooth Line.

When your Vermilion-Lines are drawn, then with Lamp-Black let the Figures be made, and a Spot in the Middle of the Margin right againſt the half Hour Line; and if you pleaſe, in the Margin, at the Top of your Plain, you may put the Date of the Year, your Name, or ſome divine Sentence, as is uſual in Things of this Nature: Then fit in your Cock ſo as to make right Angles with the Plain, ſo ſhall your Dial be drawn and finiſhed in all Reſpects, as a plain Dial ought to be.

CHAP. XIV.

How to gild with Gold on an Oily Size, either Letters or Figures, &c.

WHatſoever you would gild, muſt firſt be drawn with Gold-Size (of the Making of which, ſee *Chap.* VI.) accord-

according to the true Proportion of what you would have gilt, whether Figure, Letter, or whatever elſe it be. When you have thus drawn the true Proportion of what you would have gilt, let it remain till it be ſufficiently dry to gild upon, which you ſhall know, by touching it with the End of your Finger; for if your Finger ſtick a little to it, and yet the Colour come not off, then it is dry enough: But, if the Colour come off on your Finger, then it is not dry enough, and muſt be let alone longer; for if you ſhould then lay your Gold on, it would ſo drown it, that it would be worth nothing: But, if your Size ſhould be ſo dry as not to hold your Finger, as it were, to it, then it is too dry, and the Gold will not take; for which there is no Remedy, but new Sizing: Therefore, you muſt watch the true Time, that it be not too wet or too dry; both Extreams being not at all convenient.

When your Size is ready for Gilding, take your Book of Leaf-Gold, and opening a Leaf of it, take it out with your Cane-Plyers, and lay it on your

Gilding-Cuſhion, and if it lie not ſmooth, blow on it with your Breath, which will lay it flat and plain; then with a Knife of Cane, or for want of it, an ordinary Pocket-Knife, that hath a ſmooth and ſharp Edge; with this, (being wiped very dry on your Sleeve, that the Gold ſtick not to it) let your Leaf-Gold be cut into ſuch Pieces, or Forms, as your Judgment ſhall think moſt ſuitable to your Work.

When you have thus cut your Gold into convenient Forms, then take your Tool, that was before deſcribed in *Numb.* 9. of *Chap.* I. and breathe upon it, to make it dampiſh, that the Gold may ſtick to it; with this Tool take your Gold up (by clapping it down on the ſeveral Pieces you had before cut into Forms) and transfer it to your Size, upon which clap it down according to Diſcretion, and your Gold will leave your Tool, and cleave to your Size; which you muſt afterwards preſs down ſmooth with a Bunch of Cotton, or a Hare's-Foot: And thus you muſt do, Piece by Piece, till you have covered all your Size with Gold; and after it is fully dried,

dried, then with your Hare's-Foot, bruſh off all the looſe Gold, ſo will your Gilding remain fair and beautiful.

If your Work to be gilt, be very large, open your Book of Leaf-Gold, and lay the Leaf down on your Work, without cutting of it into Pieces, and ſo do, Leaf by Leaf, till you have covered quite over, what you intend to gild: and, if ſome particular Places ſhould miſs there, take up with a ſmall Bunch of Cotton, a Piece of Leaf-Gold, cut to a fit Size, and clap it on, that the Work may be intirely covered; and, if the Gold be to be laid in the Hollows of Carved Work, you muſt take it up on the Point of a Camel-Hair Pencil, and convey it in, and with the ſaid Pencil, dab it down, till it lie cloſe and ſmooth.

Note, That after your Gilding is thus perfectly laid on, you may, if you pleaſe, diaper, or flouriſh on it, with thin burnt Umber, whatſoever ſhall be ſuitable to your Deſign: Let the Umber be tempered but thin, ſo that the Gold may appear through it; the Form and Order of which, take from Examples, which are abundant, where Painting and Gilding are found.

Note further, that a Book of Gold contains 24 Leaves, each Leaf being three Inches Square; the Price of each Book is two Shillings at the Gold-Beaters; one Book will cover 216 ſquare Inches of Work; for ſo many ſquare Inches are contained in 24 Leaves, that are three Inches ſquare, every Leaf containing nine ſquare Inches ſuperficial in Gold. The right Underſtanding of this, will much guide you in judging how many Books of Gold will ſerve to gild that Work, whoſe ſuperficial Content in ſquare Inches may before-hand be known.

How to gild with Silver.

IN laying on Silver upon an Oily Size, the ſame Method in all Reſpects is required as for Gilding with Gold; ſave only in this, that the Size upon which Silver is laid, ought to be compounded of a very little Yellow-Oaker, and much White-Lead; for the Size being of a light Colour, the Silver laid on it will look more natural, and retain its own Colour better, the whiter the Size is.

Note,

Note, That the common Painters do now generally, in Gilding, uſe more Silver than Gold, in moſt Works that are not much expoſed to the Air; to which they afterwards give the Colour of Gold, by means of the Lacker-Varniſh; whoſe Uſe is now ſo common, that if they gild any Thing that ſtands free from the Weather, they only gild with Silver, and ſo give it the Colour of Gold with a Lacker-Varniſh, made of Gum-Lake, diſſolved in Spirit of Wine, and laid over it.

CHAP. XV.

The Way of Painting a Blue with Smalt, the only Colours that requires Strewing.

SMalt being a Colour that gives its greateſt Luſtre by the Way of Strewing only, I ſhall lay down the true Method of performing this Work. Temper up White-Lead pretty ſtiff with good clear Drying-Oil; let it be as ſtiff as it

well can be to ſpend well from the Pencil; with this White-Colour cover over the Superficies of the Work you intend to ſtrow with Smalt, and be very exact in the Work, for the Smalt takes no where, but on this new and moiſt Ground: Then take your Smalt; if the Work to be done over with it, lie flat, ſtrow it thick on the Thing to be coloured, and with the Feather-Edge of a Gooſe-Quill ſtroke over it, that it may lie even, and alike thick, on all Places; and, then, with a Bunch of Linen-Cloth, that is ſoft and pliable, dab it down cloſe, that it may well take upon the Ground laid under it; and when you imagine the Ground to be throughly dry, then wipe off the looſe Colour with a Feather, and blow the Remainder of it off with a Pair of Bellows; ſo is your Work finiſhed. And thus you have a Method for Colouring any Kind of Work, by the Way of Strowing with Smalt, provided the Work be ſuch as requires only the plain Colour.

But in Caſe you deſign to paint any Kind of Body in Smalt, that requires Shadow for the more perfect reſembling the

the Thing you intend: As, ſuppoſe it were a Blue Bell, or a Blue Boar, or the like: In this Caſe, when you have drawn out the perfect Symmetry of the Shape you intend, and have covered it with a Ground of White-Lead, well and ſtiffly tempered with clear and fat Linſeed-Oil, then proceed to give it thoſe neceſſary Shadows you intend, with good Black, well tempered; and when you have finiſhed theſe Shadows, then ſtrow on your Smalt, as before was directed; and when the Whole is dry, and the ſuperfluous Part be taken away, the Work will appear, with all its Shadows, as exact as poſſible.

Note, That the Work, upon which you lay on this Ground, for to be ſtrowed on with Smalt, ought firſt to be ſufficiently primed and laid alſo over once with White, before you lay on the Ground, that you may be ſure the Ground be perfectly White; for a White Ground is the only Thing that gives Beauty and Glory to the Colour of the Smalt.

In all other Caſes, where the Work to be ſtrowed over with Smalt, does not lie flat, you muſt take Smalt up upon a

flat Bunch of Linen-Cloth, and ſo dab it upon the Ground, you are to lay it upon.

CHAP. XVI.

How to ſcour, refreſh and preſerve, all Manner of Oil-Paintings.

THE Oil-Paintings that I here intend, are only ſuch as are kept from the Injuries of Weather; for ſuch Paintings as endure the Fury of Rain and Storms (ſuch as Sun-Dials, Poſts, Pales, *&c.*) are not any Ways to be renewed or refreſhed, but by being new coloured with the ſame Colour in which it was at firſt wrought; becauſe that the Body and Strength of the Colour is worn out by the continual Aſſaults of waſting Time, and cannot be kept freſh, unleſs new done over, once in 3 or 4 Years, according as the Weather is found to wear it off, and make it look dull.

But, as for ſuch Paintings that are ſheltered from Weather, as all In-door Paint-

ings are, they ſtill keep their Body and Colour, although their Beauty may be much impaired by Duſt, Smoak, Fly-Shits, moiſt Vapours, and the like, which will in Time ſoil and tarniſh them: To remedy which, take theſe few Rules.

If your Painting be Wainſcoting, or any other Joinery or Carpentery-Work, that is painted in Oil, take Wood-Aſhes well ſifted, which mix with Water ſomewhat thickly; then take a ſtrong ſtubbed Briſtle-Bruſh, large, and dip it in the moiſtened Aſhes, and therewith rub and ſcour your Painting all over very gently, in all Places alike; and when you find that all the Soil is taken off, then waſh it clean with fair Water, and let it dry; and you will find your Painting to be near as freſh as when firſt laid on.

But, if your Painting be more curious, whether Figures of Men, Beaſts, Landſkip, Fruitage, Florage, or the like, then let your Picture be gently ſcoured, and then cleanly waſhed off with fair Water: After it is well dry, let it be run over with Varniſh made with White of Eggs, and you will find the Beauty

and

and Luſtre of your Picture much recovered.

The Whites of Eggs before-mentioned, are only to be beaten to an Oil, and then curiouſly rubbed on, either with a clean Linen-Cloth, or a Pencil.

But *Note*, That this Scouring ought not to be practiſed but very ſeldom (as, when your Picture is very much ſoiled) becauſe often and too frequent Operations in this Kind, muſt needs wear off a little of the Colours; therefore ſtrive what you can to preſerve their firſt Beauty, by keeping them free from Smoak, and by often ſtriking off the Duſt with a Fox-Tail; as likewiſe preſerving them from Flies, by dreſſing up your Rooms with green Boughs, to which the Flies will gather themſelves, and ſo not hurt your Pictures. Sir *Hugh Platt*, in the Firſt Part of his *Garden of Eden*, and 17th Page, tells us of an *Italian* Fancy for this Purpoſe, by hanging in the Roof and Sides of the Room, ſmall Pompions or Cucumbers ſtuck full of Barley, which will ſprout into green Spires, on which the Flies will lodge. *Query*, Whether Veſſels of Tin, made round

round about full of Holes, filled with Earth, and every Hole planted with a Sprig of Orpen, Penyroyal, Mint, *&c.* and watered as Need requires, would not be more beautiful and uſeful for this Purpoſe?

Another Note worth Obſervation, is, That all Pictures (eſpecially thoſe that are wrought with Mixtures of White-Lead) are apt to tarniſh and grow ruſty, as is ſeen in all ancient Pieces: To prevent which, in the Months of *May* and *June*, let your Pictures be expoſed to the hot Sun three or four Days; this will draw off much of the Tarniſh, and make the Colours more freſh and beautiful: And thus doing from Year to Year will preſerve them wonderfully.

Although, in the Beginning of this Chapter, I mentioned Dials among thoſe Things, that are not to be refreſhed but by new Painting; yet here take Notice, That I think it not convenient at all to lay new Colouring upon the old Ground of a Sun-Dial (that is, to draw the old Lines and Figures over again in the ſame Poſture, wherein they were drawn before)

before) but rather to take the Declination a-new, and according thereunto make a new Draught of your Dial, and proceed in the Painting of it, in all Reſpects, as if it were a new Dial: For it is obſerved, That Dials which were made many Years, as 30 or 40 Years ago (which we believe went true, when firſt made) will not give the true Hour now, but go very falſe; which is cauſed by ſome ſecret Motion of the Earth, not hitherto taken Notice of, which apparently alters the Declination of all Plains whatſoever. If any one requires more Satisfaction herein, let him repair to ſome old Dial that was made many Years ago, and according to the Diſtance of the Subſtile from the Meridian, let him find out the Declination when firſt made, as any Man, that is an Artiſt, can eaſily do; then let him take the Declination of the Plain by the Sun, and he ſhall find theſe two Declinations to differ conſiderably, according to the Number of Years contained between your Obſervation and the Time of the Dial's firſt Making; ſo that a Plain that ſtood full South, 30, 40, or 60 Years ago,

ago, ſhall now decline ſome Degrees either to the Eaſt or Weſt, according to the Nature of the Earth's Motion, which is that which is called the Variation of the Compaſs; which is found, by Obſervation, to differ much in the ſame Country, in the Space of 50 or 60 Years; as all ſkilled in Aſtronomy know very well.

CHAP. XVII.

An Experiment of very near Affinity to Oil-Painting, but of great Uſe to Travellers of ſome Kinds, to the chief Officers of Camps and Armies, Seamen, and ſuch like.

THis Experiment is no other than a Diſcovery of the Way and Myſtery of Making Oil Cloath, now uſed for Hat-Caſes; and that is this: Take of the Drying-Oil (that is mentioned in *Ch.* VI.) ſet it on the Fire, and diſſolve in it ſome good Roſin, or (which is better, but dearer) Gum-Lack; let the Quantity

Quantity be ſuch, as may make the Oil thick as a Balſom; for it muſt not be ſo thin as to run about, if ſpread on a Cloth: When the Roſin or Gums are diſſolved, you may either work it of itſelf, or add to it ſome Colour, as Verdigreaſe for a Green, or Umber for a Hair-Colour; or White-Lead and Lam-Black for a Grey, or Indico and White for a light Blue.

This Varniſh, if ſpread on Canvas, or any other Linen-Cloth, ſo that the Cloth be fully drenched and intirely glazed over with it, and ſuffered to dry throughly, is impenetrable for all Manner of Wet; and if Carriers and Higlers, and ſuch Kind of Perſons, that are neceſſitated to travel in all Manner of Weathers, had but little light Canvas-Cloaks made for them, and theſe Cloaks were afterwards varniſhed over with the aforeſaid Varniſh, theſe Cloaks would ſecure them from Wet, as well as if they remained ſtill in their own Houſes; for, as I ſaid before, no Wet will penetrate through it; four and twenty Hours Rain would make no more Impreſſion upon it, than if it had never rained at all.

The

The Officers Tents in an Army or Camp, if plaiſtered over with this Varniſh, will be preſerved as ſecurely from all Wet, as the beſt Houſes, and be as warm and dry; neither will there follow any great Inconvenience in Decamping; for Canvas ſo varniſhed, is almoſt as pliable as the naked Cloth, and not very much more weighty, eſpecially if the Varniſh be laid on plain, without any Colour mixt with it; for that is both the lighter and more pliable.

The ſame Advantage may Seamen reap by it, or any other Perſon that muſt neceſſarily attend in Storms and Rain.

A Sheep-Skin Boot well liquored with this Varniſh, after the Boot is made, and ſo throughly done over as to lie with a Glaſs on the Outſide, ſhall endure more Wet than the beſt Neat's-Leather Boot, being alſo much more pliable, eaſy and light; the ſame may be ſaid of Shoes in great Part.

The great Reaſon, why the Oil-Hat-Caſe has not been more often in Uſe, is by Reaſon of the Difficulty required to form it into Garments, and then the very Hat-Caſes themſelves do let Water in

in at the Seams; but this Varniſh being laid on after the Garments are made, does ſo intirely ſecure every Part, as there's no Poſſibility or Place for the Wet's Admittance.

The ſame may be of Advantage to Abundance of other human Neceſſities, too long here to enumerate; and, for ſecuring any Kind of Timber-Work, it equals Painting with Colours in Oil, and is much more eaſy to attain; for Linſeed-Oil and Roſin are much more eaſily melted together by Boiling, than Colours can any Ways be ground; and being of the Conſiſtence of a Balſom, works delicately with a Bruſh, and of itſelf, without the Addition of Colours, bears a Body ſufficient to ſecure all Manner of Timber-Work, equal to moſt Oil-Colours.

In the Working of it there's no great Skill required, if you can but uſe a Painter's-Bruſh; only let the Matter you lay it on, be ſo throughly drenched, that the Outſide may be glazed with it: If you deſire a Colour on the Outſide, you need only grind Colour with the laſt Varniſh you lay on.

CHAP.

CHAP. XVIII.

How to preſerve all bright Iron-Work from Ruſt, and other Injuries of a moiſt and corroding Air, by an Oily-Varniſh.

TAke good *Venetian*, or for the Want of that, the beſt and cleareſt common Turpentine; diſſolve it in Oil of Turpentine, and add to it ſome good Drying-Linſeed-Oil, in which Red-Lead hath been mixt, made clear by Inſolalation, or long ſtanding in the hot Sun (for ſome Uſes, the common Drying-Linſeed-Oil may ſerve) mix them well together, and with this Mixture, varniſh over any Sort of bright Iron-Work, ſuch as Hinges and Locks, the Iron-Work of Cabinets, or any other Kind of Iron-Work whatever, that is uſed about the Houſes of the Nobility and Gentry; as alſo all Kind of bright Arms, that is kept in Armories and other Places of Publick State: 'Tis a certain Preſerver of all ſuch Iron-

Work

Work from Ruſt, let it be what it will, provided it be ſuch as is not brought into common Uſe; for much Handling will wear it off, and Heat will again diſſolve it; but, for all ſuch bright Iron-Work that is uſed about either Carpenters or Joiners Work, that require not much Handling, as alſo Arms, *&c.* that ſtand up for State, rather than preſent Uſe, 'tis, as I ſaid before, an infallible Preſervative.

When you uſe this Oil-Varniſh, 'tis beſt to warm it, and then with a Bruſh lay it on as thin as poſſible; this is beſt for Arms; but for other Iron-Work, it may be laid on cold; in four or five Days after 'tis laid on, 'twill be throughly dry.

Note, That ſuch Arms as are done over with it, may, when they come into Uſe, be cleanſed from it again, by being warmed hot before a Fire; for Heat will diſſolve it, but Water will do it no Hurt.

CHAP.

CHAP. XIX.

The Art of Back-Painting Metzotinto-Prints, with Oil-Colours.

THis Myſtery conſiſts chiefly in Paſting the Print upon a Piece of Glaſs of ſuch a Size as fits the Print. Now to do this, take your Print and lay it in clean Water for two Days and two Nights, or longer, if your Print be on very ſtrong Paper; then take it out, and lay it upon two Sheets of Paper, and cover it with two more, and let it lie there a little to ſuck out the Moiſture: In the mean Time, take the Glaſs your Print is to be paſted on, and ſet it near the Fire to warm; then take *Straſburg* Turpentine and put it into a Gally-Pot, and warm it upon the Fire; then take a Hog's-Hair-Bruſh, the Hairs being well faſtned by Wedging, as before was ſhewed, and therewith ſpread over the Turpentine very ſmoothly on the Glaſs; then take the Print from between

between the Paper, and lay it upon the Glaſs, beginning firſt at one Part, and ſo rub it down gently, as you go on, till it lie cloſe, and there be no Wind Bladders between; then with your Fingers roll or rub off the Paper from the Backſide of the Print, till you ſee nothing but the Print left upon the Glaſs; and when this is done, ſet it by to dry; and when 'tis dry, varniſh it over with ſome White-Tranſparent-Varniſh, that the Print may be ſeen through it; and then it is fit for Painting.

You may, inſtead of ſoaking your Prints two Days and two Nights, roll them up and boil them for about two Hours in Water, and that will make them as fit for peeling as the other Way, when rubbed with your Fingers; then having prepared your Oil-Colours, as in the preceding Work is directed, grinding them very fine, and tempering them up very ſtiff, let the Backſide of the tranſparent Print be coloured over with ſuch Colours, as each particular Part does require, letting the Maſter-Lines of the Print ſtill guide your Pencil; ſo will each particular Colour lie

fair

fair to the Eye, on the other Side, and look almoſt as well as a Painted-Piece, if it be done neatly.

Note, That the Shadows of the Print are generally ſufficient for the Shadow of every Colour; but if you deſire to give a Shadow from your Pencil, then let the Shadows be laid on firſt, and the other Colours after.

Note alſo, That, in laying on of Colours in this Kind of Backſide-Painting, you need not be curious in laying them on ſmooth; tis not at all requiſite here, where the chief Aim is only to have the Colours appear well on the Foreſide of the Print; and, therefore, the only Care to be uſed in this Work, is to lay Colour thick enough, that its Body may ſtrike the Colour of it plainly through the Glaſs.

Some

Some Directions for Mixing of Oil-Colours for divers Purposes, in this Art of Colouring Prints with Oil-Colours.

Colours for ſeveral Faces.

FOR Faces that are accounted fair, take White-Lead, a little Vermilion, and a very ſmall Touch of Lake.

For the Lips, take more of the Vermilion and Lake, than you did for the Face.

For a Brown-Face, take burnt Oaker and White.

For a Tawny-Moor, take Cullens-Earth, a little Burnt-Oaker, and a little White.

Colours for Hair.

For a Brown-Hair, mix Umber and a little Black and White.

For a Yellow-Hair, take Stone-Oaker, White-Lead, a little Vermilion.

For a Flaxen-Hair, take White-Lead, Stone-Oaker, and a little Cullens-Earth.

Linen,

Is done with White-Lead or Ceruſs.

Silver,

Is done with White, a little Smalt, and ſome White-Maſticote.

Gold,

Is done with Red-Orpiment and White-Maſticote, of each an equal Quantity.

Colours for Garments.

For Blue Garments, the beſt Smalt and White-Lead.

For a Graſs-Green, mix Verdigreaſe and a little Pink-Yellow.

For a Willow-Green, mix Verdigreaſe and a very little White.

A Sea-Green is made, by mixing Green-Verditer, Pink and White-Lead.

A French-Green is made, by mixing Pink and Indico.

A Carnation, by mixing Lake and White-Lead.

A Crimſon is made, by mixing Vermilion, Lake and White.

A Scarlet, is only Vermilion laid on alone.

A Cherry-Colour is made, by mixing Vermilion and White-Lead.

For a Yellow, lay on either Yellow-Orpiment, or Yellow-Maſticote; if your Yellows are more pale, then mix White with the former.

For an Orange-Colour, mix Red-Orpiment and a little Vermilion.

For a Purple, mix Smalt, Lake and White.

For a Violet, mix Bice and Lake.

A Straw-Colour is made with White, Yellow-Oaker, and a very little Umber.

An Aſh-Colour is made, by mixing Black and White.

A Cheſnut-Colour is made, by mixing Umber, Lake and White.

For a Dove-Colour, or the Wings of an Angel, take White, a little Lake, and a little Smalt.

Colours for Trees.

For the Bodies of Trees, take Pink, Yellow, White-Lead, and Yellow-Oaker, and a little Black.

For the Leaves of them that are near the

the Eye, take Verdigreaſe and Pink; or if darker-coloured, then take Indico and Pink.

For Leaves of Trees farther off, take Green-Verditer, Pink, and White-Lead.

For them that are fartheſt of all, take Terrevert and White.

Colours for Grounds behind a Picture.

Note, That a light Hair requires a dark Ground; and a dark Hair, a light Ground.

Ground-Colours for a Picture with a light Hair, are made with Umber, White and Black.

A Ground-Colour for a dark Hair, is made with Umber and White.

For a Ground in a Landſkip.

Take Pink, Oaker, and White, with a little Green-Verditer.

For Country-Houſes, at a Diſtance, take White-Lead, Yellow-Oaker, and Smalt; the ſame Colour ſerves alſo for Houſes of Stone.

For Brick-Houſes or Walls, take Yel-

low-Oaker burnt, and White-Lead, if the Work be far off; but if near, then India-Red, and a little White.

For Pales of Wood or other Timber-Work, of what Kind ſoever, in Country-Cottages, take Umber, White, and a little Oaker.

Sky-Colours,

Are made of Smalt and White for the higheſt Skies, more White for the lower, and Yellow mixt wlth a little Vermilion for the loweſt of all.

CHAP. XX.

The Manner of Painting Cloth, or Sarſnet Shaſh-Windows.

LET the Cloth or Sarſnet be firſt wet in clean Water, and then ſtrained tight to the Frames, and there made faſt; and when they be thorough dry, varniſh them over with the following Tranſparent-Varniſh, thus made:

Take

Take a Pound of good clear Nut-Oil, put it into an Earthen-Pipkin, and add to it half a Pound of good Silver-Litharge in fine Powder; ſet it on a ſmall Fire, but not to boil, and let it ſtand hot, at leaſt twelve Hours, ſtirring it often in that Time (this adds a drying Quality to the Oil) when it has ſtood thus long, pour it off from the Litharge by Inclination, then take a Pound and a half of the cleareſt White-Roſin, beat it to Powder, and mix it with the Oil on a ſlow Fire, always ſtirring it till the Roſin be diſſolved; then take it off, and put into it a Pound of good clear *Venice*-Turpentine, and ſtir them all well together; then with a good Bruſh let your Shaſhes be throughly varniſhed over with this Mixture, ſo that they may appear all over clear and tranſparent.

When this Varniſh is dry, then you may paint upon them what Fancy you pleaſe, with Oil-Colours; but Landſkip is moſt common and natural, for which Purpoſe, the Colours you mix, ought to be ſuch as are of a fine Body, and apt to become tranſparent.

For theſe Purpoſes, Lake makes an excellent, tranſparent Ruby-Colour, and Diſtilled-Verdigreaſe makes an incomparable Tranſparent-Green. Orpiment makes an excellent, tranſparent Gold-Colour; Umber and Yellow-Oaker will become indifferent tranſparent, if thinly mixt; but for the reſt, there are none that will lie clear in this Work, but only according to the very Thinneſs of their Mixture with the Oil.

The aforeſaid Varniſh, as it is clear of itſelf, is an excellent Varniſh for Paper-Windows, being much more tranſparent than any other Compoſition, and more laſting; for the Roſin and Turpentine being made tough, when dry, by means of the Oil mixt with it, does more powerfully reſiſt the Injuries of all Weather than Oil alone.

If any are troubled with weak Eyes, and cannot endure a bright Light, this Varniſh, mixt with Diſtilled-Verdigreaſe, and Paper-Windows, or Sarſnet ones, done over with it, will make an incomparable green Light, very comfortable to the Sight, and of great Benefit to ſuch as love not too much Brightneſs: a Note

of

of good Uſe, eſpecially to all great Students, whoſe Sight is often much impaired and weakned by poring too much upon their Books; the Whiteneſs of the Paper being obſerved to be often a great Enemy to the Sight of ſome Men, the Inconveniencies of which, ſuch a green Light as this now mentioned, will infallibly prevent, beyond green Reading-Glaſs, Spectacles, or any other Contrivance yet found out The like Benefit may ſome Tradeſmen alſo receive from it.

CHAP. XXI.

The whole Art and Myſtery of Colouring Maps, and other Prints, in Water-Colours.

HAving, as yet, ſeen nothing publiſhed upon this Subject, that is Authentick, I have thought fit, for the ſake of thoſe that are inclined to Ingenuity, to ſet forth the Way and Manner of doing this Work, it being an excel-

lent Recreation for thoſe Gentry, and others, who delight in the Knowledge of Maps; which by being coloured, and the ſeveral Diviſions diſtinguiſhed one from the other by Colours of different Kinds, do give a better Idea of the Countries they deſcribe, than they can poſſibly do uncoloured.

Now, to perform this Work after the beſt Manner, there muſt be provided in the firſt Place, a Lye made with Tartar, and a Gum-Water.

To make the Tartar-Lye do thus: Take two Ounces of the beſt White-Tartar, which is a ſtony Subſtance that ſticks to the Side of the Wine-Veſſels, and is ſold by the Druggiſts. Wrap it up hard and tight in half a Sheet of brown Cap-Paper, wet it throughly in Water, and put it into a clear Fire, either of Wood or Sea-Coal; let it remain therein till it be red-hot quite through, then take it out with a Pair of Tongs, and put it immediately into a Pint of Water, and with your Fingers rub it well to Pieces; put it into a long, narrow Glaſs, and in a Day or two the Black will all ſettle, and the Lye will become pure clear:

clear: Pour off the Lye into a clean Glaſs, and keep it cloſe ſtopt for Uſe.

To make Gum-Water, Take three Ounces of the whiteſt and cleareſt Gum-Araback, which is alſo ſold at the Druggiſts, and beat it as ſmall as you can bruiſe it; then put it into a Pint of fair Spring-Water, and let it diſſolve therein, which will be much haſtened by ſhaking the Glaſs three or four Times a Day very well, that the Gum that is diſſolved may mix the better with the Water that is above it: And when it is all diſſolved, if there appear any Foulneſs in it, ſtrain it through a Rag into a clean Earthen-Diſh, and put it into a Glaſs, and ſtop it up for Uſe. *Note*, That too much of this ought not to be made at a Time: For, if the Gum be kept diſſolved too long in the Water, it will rot, and ſo be of no Uſe; therefore, obſerve to make it freſh once in two Months, or three at the fartheſt.

In the next Place, you muſt prepare, or make your Colours ready for Uſe; and the beſt for this Work are thoſe that follow; Namely,

Copper-Green; and that is made thus: Take a Pound of right *French* Verdigreaſe, made at *Montpelier*, this being the beſt; (for the Verdigreaſe made at any other Place will fade:) To this add three Ounces of Cream of Tartar, beat them both into a fine Powder, and take care, while the Verdigreaſe is in the pounding, to ſtop your Noſe, and hold a Bunch of fine Linen in your Mouth to breathe through, elſe the ſubtil Powder of the Verdigreaſe will be apt to offend; and when this is done, mix both the Powders in two Quarts of Water, and boil it in an Earthen Pipkin till it boil away a Quart, then ſtrain it out when cold, and put the Liquor into a Glaſs, ſtop it up, and let it ſtand to ſettle till the Liquor be very clear; ſo you will have a delicate Green: But ſometimes, the Verdigreaſe not being always of a Goodneſs, the Colour may not be deep enough for ſome Uſes. In this Caſe, put ſome of it into a broad Earthen-Diſh, and ſet it over a Chafing-Diſh of Coals, and by a gentle Heat, diminiſh ſo much of the Liquor, till by trying on a Paper, and letting of it dry, the Colour

Colour pleaſe you. And here you are to note, That if it ſhine too much when dry, it is not right; for it is not rightly made, except it but juſt ſhine; and if you cannot make the Colour deep enough by evaporating by Heat, the abounding Liquid, without making it ſhine too much, it were better to add ſome more Verdigreaſe, and boil it up a-new, till it become a tranſparent, deep Willow-Green. If you would make but a Pint of this, you muſt take but half the Quantities of each: And you are alſo to take Notice, that this is a Colour that will keep many Years without decaying, if the Glaſs that contains it be cloſe ſtopt up.

The next Colour needful to be made, is a Stone-Colour, or a Liquor of Myrrh; which is thus done: Take a Pint of your Tartar-Lye, and add to it an Ounce of the beſt Myrrh in Powder, which you can get at the Druggiſts, and boil it till the Myrrh is diſſolved, which will be done in a ſmall Time; let it ſettle, and pour off the clear for Uſe, which you muſt keep cloſe ſtopt up. This is alſo a Tincture which will ne-

ver

ver decay, and may be made fainter or deeper, by boiling more of the Liquor away to make it deeper, or by adding Water to it to make it fainter.

And in the laſt Place, there is required a Crimſon Colour, which is ſpeedily made thus. Buy at the Druggiſts ſome good Cochinele; about half an Ounce will go a great Way. Take thirty or forty Grains, bruiſe them in a Gally-Pot to fine Powder, then put to them as many Drops of the Tartar-Lye as will juſt wet it, and make it give forth its Colour; and immediately add to it half a Spoonful of Water, or more, if the Colour be yet too deep, and you will have a delicate Purple-Liquor or Tincture. Then take a Bit of Allom, and with a Knife ſcrape very finely a very little of it into the Tincture, and this will take away the Purple-Colour, and make it a delicate Crimſon. Strain this through a fine Cloth into a clean Gally-Pot, and uſe it as ſoon as you can; for this is a Colour that always looks moſt noble when ſoon made uſe of, for it will decay if it ſtand long.

Indico

Indico is another Colour uſed in colouring of Maps. This is bought at the Colour-Shops that ſell Paint, and it muſt be ground very fine on a Stone, as you do Oil-Colours, with a little Tartar-Lye, to make it give its Colour, and look the brighter; when 'tis ground perfect fine like a thick Syrup, add Gum-Water to it till it be thin enough for your Purpoſe, and keep it in a Glaſs cloſe ſtopt up; but it will ſettle ſo, that when you uſe it, you muſt ſtir it up from the Bottom.

For a Yellow, Gumboge is the beſt; it is ſold at Druggiſts in Lumps, and the Way to make it fit for Uſe, is to make a little Hole with a Knife in the Lump, and put into the Hole ſome Water; ſtir it well with a Pencil till the Water be either a faint or a deeper Yellow, as your Occaſion requires; then pour it into a Gally-Pot, and temper up more, till you have enough for your Purpoſe.

Red-Lead is alſo a Colour much uſed in this Work, and ſo is Orpiment; both which you may buy at the Colour-Shops very finely ground, ſo that they need

need only to be tempered with Gum-Water, to be fit for Uſe.

Blue-Bice is alſo uſed often, which needs only to be tempered with Gum-Water; and when Men deſign to be curious, they may uſe, inſtead thereof, Ultramarine, which is the beſt and moſt glorious of all Blues, but vaſtly dear; yet, ſmall Papers of it of about two Shillings Price, may be bought at ſome Colour-Shops, which if carefully uſed, will go a great Way: It needs only to be tempered in a very ſmall Gally-Pot with a little Gum-Water, till it lie on the Paper with a good Colour.

There is alſo an exceeding glorious Red or Crimſon-Colour, called Carmine, which is alſo very dear, yet about half a Crown's Worth will go a great Way in the Uſes to which it is put; it needs only to be tempered with Gum-Water, and gives ſeveral Degrees of Colour, according as it is thicker or thinner tempered.

Vermilion is alſo uſed in ſome Caſes. This is a glorious Scarlet, and needs only to be tempered with Gum-Water,

for

for it may be bought very finely ground to Powder at the Colour-Shops; only 'tis to be noted, that this Colour ſhews much brighter when dry, if glazed over with ſome thick Gum-Water, made by putting two Ounces of Gum-Araback to half a Pint of Water, or leſs.

And for ſome Uſes, Burnt-Umber, ground very fine with Water as thick as poſſible, and then tempered up with Gum-Water to a due Thickneſs, makes a good tranſparent Colour.

There is another Colour needful in this Work, which is a moſt pleaſant Graſs-Green; and that is made thus: Take a Lump of *Gum-Boge*, and make a little Hole in it; then put therein ſome Copper-Green, ſtir it about with a Pencil, and from a Willow you will ſee it turn to a Graſs-Green, which you may make deeper or lighter, as you ſtir it about a longer or a leſſer Time.

Of the Practice of Colouring Maps.

The Colours being prepared as before is directed, you may proceed to co-

lour a Map in this Manner, firſt take Notice of the ſeveral Diviſions in a Map, which diſtinguiſh one Kingdom from another, or one County from another, which are known by certain Lines, or Rows of Pricks, or Points of ſeveral Sizes and Shapes, agreeable to the Diviſions they are to denote. As for Inſtance, *Portugal* is diſtinguiſhed from *Spain* by a Row of large Points, or Pricks, and the Provinces of that Kingdom, or Shires, as we call them in *England*, are diſtinguiſhed one from another by Lines of leſſer Points or Pricks. Now, if you were to colour the Kingdom of *Portugal*, do thus; firſt, with a ſmall Camel-Hair Pencil in a Duck's-Quill, colour over all the Hills within the large prickt Line that divides it from *Spain*, with the Tincture of Myrrh, very thin; then, if there be any Woods, dab every Tree with the Point of a very fine Pencil dipt in Graſs-Green, made of Copper-Green, tempered up with Gumboge; but in dipping your Pencils into any Colour, ſtroke it againſt the Sides of the Pot or Glaſs in which you put it, that the Colour

may not drop from it and ſpoil your Work; then, with another Pencil dipt in Red-Lead, tempered thinly with Gum-Water, let the principal Cities and Towns be done over, that the Eye may more readily perceive them. Laſtly, with a Duck's-Quill Pencil dipt in Copper-Green, trace out the Bounds of one of the Provinces, keeping the outmoſt Edge of the Pencil cloſe to the Pricks; and be careful to lay your Colours all alike, and not thick in one place and thin in another, or too deep in ſome Places and too light in others; and when 'tis almoſt dry, take another clean Pencil of the ſame Size, and dip it in Water, ſtroaking the Water out well, and therewith rub upon the Inſide of the coloured Line, till it take away moſt of the Colour on the Edge, and make it grow faint and loſe itſelf by Degrees, and continue ſo to do till you have gone quite round; then take Yellow made of Gumboge, and go round the Inſide of the Pricks that divide the next Province, ſweetning over the innermoſt Side of it, when almoſt dry, with a Pencil dipt in Water, as

you

you did before, do over the next to that with the Crimſon-Tincture, made with Cochinele, and the next do round with Red-Lead, and the next to that with Graſs-Green, and the next to that with any of the former Colours, that will ſo agree with the Work, that two joining Provinces may not be coloured with the ſame Colour, for then you could not diſtinguiſh them.

And in this Work of Dividing, obſerve, That when your Boundary-Lines paſs through Woods already coloured, or Hills; obſerve then, I ſay, to miſs thoſe Woods and Hills in your drawing a Colour round the Province; and be careful alſo not to draw any Colour over the Cities or Towns that are painted Red, for that ſpoils the Beauty.

And when you have coloured over or divided all the Counties, then colour the Sea-Shoar, and all Lakes of Water, if there be any, with thin Indico, working of that Side of the Colour, which is from the Land, faint, with a wet Pencil, as before was taught; and, if there be any Ships, colour the Water ſhaded at the Bottom with the ſame Indico,

Indico, painting the Hull of the Ship with Umber, the Sails with Tincture of Myrrh, and the Flags with Vermilion or Blue-Bice; and if they are repreſented as firing their Guns, let all the Smoak be done with very thin Bice; and as for the Margent, or ſquare Stick of Degrees, as the Gravers term it, which goes round the Map, let that be coloured either with Yellow, or Red-Lead, or Crimſon; none but thoſe three Colours ſerving well for this Purpoſe.

As for the Compartment or Title, which conſiſts generally of ſome neat Device to ſet the Map off, and make it appear more beautiful, it may be coloured according to the Nature of it. As for Inſtance, Crowns or any Thing repreſenting Gold, with Yellow, ſhadowed in the darkeſt Parts of the Graving with Orpiment; the Hair of Men or Women, with Tincture of Myrrh, or if black, with half Water half common Ink, or with Burnt-Umber; the Fleſh of Women or Boys, with a very little of the Tincture of Cochinele, in a large Quantity of Water; and Garments, either with thin Green, ſhadowed with thicker,

thicker, and with the Tincture of Cochinele made thin with Water, and ſhaded with the ſame Colour thicker, and thin Bice, and ſhadowed with a thicker Mixture of the ſame, or with Vermilion ſhaded with Carmine. In general obſerve, That the thinner the Colour is laid in the lighteſt Part of all Garments, and the deeper in the Shades, the more beautiful it appears; for the thick of the ſame Colour is the moſt natural Shade for moſt Colours, except Yellow and Blue; for Blue ſometimes requires to be ſhaded in the darkeſt Places with a Black, or at leaſt with thick Indico; and Yellow requires Red-Lead or Crimſon, and ſometimes it appears very pleaſing when ſhaded with Green.

If you are to paint Clouds, do them ſometimes with Tincture of Myrrh; and in ſome Caſes, with a very thin Crimſon; and for Variety, you may do ſome with thin Ivory-Black, ground very fine, and tempered up with much Gum-Water. Smoak is beſt repreſented with very thin Blue-Bice, and if you are to colour any Repreſentation

preſentation of Sea-Waves, do it with Indico.

If you are to colour any Repreſentations of Land, do the lighteſt Parts over with very thin Yellow, that repreſents a Straw-Colour, ſhading it with Orpiment; and in other Parts, do it with light Green, and ſhade it with a deeper Green. Rocks muſt be done with Tincture of Myrrh, and the Trees, ſome with Copper-Green, ſome with dark Graſs-Green, and ſome with thin Umber. Houſes may be done with Red-Lead, and the Tiles with Vermilion, or with Bice, to repreſent Blue-Slate. Caſtles may be done with Tincture of Myrrh in ſome Parts, in others, with thin Red-Lead; and the Spires and Pinnacles, with Blue.

But, when all is ſaid that can be ſaid, the only Way to colour Maps well, is by a Pattern done by ſome good Workman, of which the *Dutch* are eſteemed the beſt. Three or four ſuch Maps coloured by a good Artiſt, are ſufficient to guide a Man in the right doing of his Work: But, if he cannot obtain this, he may by a few Trials grow a good

Arriſt

Artiſt in a ſhort Time; for this is only attained to by Practice, and if a Man does ſpoil half a Score Maps, in order to get the Knack of colouring a Map well at laſt, there's no Man that is ingenious will grumble at it.

The Art of Colouring well may be attained to by Practice, as was ſaid; but the hardeſt Thing is, to know rightly how to make and prepare the Colours, which here is taught faithfully: And if your Paper be good, and bear the Colours well, without ſuffering them to ſink into it, all that are here mentioned will lie fair and pleaſant to the Eye; and 'tis the Fairneſs of the Colours that is moſt eſteemed in this Art of Map-Painting: But if the Paper be not good and ſtrong, no Art can make the Colours lie well; therefore in buying Maps, chuſe thoſe that are printed on the ſtrongeſt or thickeſt Paper.

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